TOGRUL POLUKHOV

5 PATHS TO PROSPERITY:

Transforming Business Processes

conceptual applied knowledge and research

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Five Paths to Prosperity: Transforming Business Processes

conceptual applied knowledge and research

by Togrul Polukhov

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The book is intended for managers and specialists of industrial enterprises, employees of scientific research institutes, students of advanced training institutes, university students, doctoral students, graduate students and consultants involved in implementing business transformations.

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PREFACE

In the ever-evolving landscape of modern business, the relentless pursuit of excellence is an unwavering goal. In a world where industries grapple with complexities, seize fleeting opportunities, and adapt to the ever-shifting tides of the market, effective business process transformation emerges as the linchpin of success.

Within the pages of this book, "Five Paths to Prosperity: Transforming Business Processes," we embark on a transformative journey that navigates through five distinct paths. Each path represents a vital thread in the intricate tapestry of the contemporary business world. These paths are not just theoretical constructs; they are tried-and-tested strategies drawn from the experiences of industrial enterprises in Azerbaijan.

Throughout these chapters, I explore key strategies that have the potential to redefine the trajectory of your organization. We delve into the realm of automation, where technology metamorphoses operational landscapes.

This book isn't just about theory; it's a treasure trove of real-world case studies from prominent companies. These case studies serve as invaluable signposts, offering practical insights into implementing each of the five paths. As I dissect these paths into chapters, we present a holistic perspective, outlining each approach's challenges, steps, advantages, and disadvantages.

Consider this book as your guide, a trusted companion on your journey to navigate the intricate terrain of business process transformation with unwavering confidence. The comprehensive coverage of each path, enriched by an array

of case studies, promises a reading experience that is both enlightening and enriching. Through the hurdles and milestones detailed in each chapter, we aim to equip you with the tools and knowledge needed to surmount challenges and seize opportunities.

My journey in ERP system application spans 15 years, enriched by hands-on experience. With a Ph.D. in Economics, I have delved deep into the economic underpinnings of these strategies. This profound knowledge has empowered me to extract insights that increase the content of this book, providing readers with a comprehensive understanding of the topics explored.

This book is not just for seasoned managers but also specialists in industrial enterprises, employees of scientific research institutes, students at advanced training institutes, university students, and doctoral and graduate students.

The insights within these pages are designed to be practical and visionary, offering a roadmap that resonates with seasoned professionals and budding entrepreneurs alike. As you immerse yourself in the lessons, I encourage you to embrace the possibilities and embark on a transformative journey. Through the wisdom shared within these pages, you will improve your understanding of business processes and empower your relentless pursuit of excellence.

I extend my heartfelt gratitude to everyone who has lent his guidance, encouragement, and expertise. Feel free to send me your suggestions and feedback by e-mail (togrul.polukhov@gmail.com).

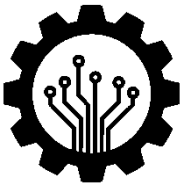
Best regards,

Togrul Polukhov

ABBREVIATIONS AND DISCLOSURES

APP - Act of Public Procurement
ASAN - Azerbaijani state agency for public services
AI - Artificial Intelligence
BPP - Business Process procedures
CE - Centralized (economy)
CES - Common Economic Space
CIS countries - The Commonwealth of Independent States
CMC - Certified management consultant
CO - Controlling
EAEC - Eurasian Economic Community
ERP - Enterprise resource planning
EU - European Union
EY - Ernst & Young
FI - Financial Accounting
FMCG - Fast-moving consumer goods
FTE - Full time equivalent
G/L- General Ledger
GDP - Gross domestic product
HANA - High-performance Analytic Appliance
HR - Human resources
ICT - Information and communication technology
IFRS - International Financial Reporting Standards
IT - Information technology
ITT - Invitation To Tender
KPI - Key performance indicator
M&A - Mergers and acquisitions

ME- Market Oriented (economy)
MM - Materials Management
NEV - Negative expected value
PEV - Positive expected value
PM - Plant Maintenance
PP - Production Planning
PwC - PricewaterhouseCoopers
R/3 (SAP)- “Real-time” and “3 tier” processing
RFI - (Request for Information)
RFP - (Request for proposal)
RFQ - (Request for quote)
ROC - Receiver operating characteristic
ROI - Return on investment
RPA - Robotic Process Automation
RQ - Research question
SAP - System Applications Products
SADT - Structured Analysis and Design Technique
SD - Sales and Distribution
SME - Small and medium-sized enterprise
SOCAR - State Oil Company of Azerbaijan Republic
SRM - Supplier Management
TE - Transforming Economies
USD - US Dollar
VAT - Value-added taxation



PATH 1. AUTOMATION OF BUSINESS PROCESSES

This chapter studies the economic nature of the business process, provides its detailed definition, classifies business processes according to the level of automation, identifies areas for business process automation in industrial enterprises, develops methodological and conceptual bases for business process modelling, presents fundamental principles of automation of the business processes in Azerbaijan's industrial enterprise.

1.1. The importance of streamlining business processes

According to the requirements of the new economic conditions, accountancy and analysis of production and service processes should be organized so that it will be possible to collect accurate information on the processes happening in these spheres at any time. In that regard, it is essential to speed up the implementation of accounting, analysis and control mechanisms in the Azerbaijani economy by adapting them to international standards and bringing them to the level of developed countries. In particular, providing accurate and quality information to the related parties has become a requirement regarding international management standards and financial reports to which are a partner. In such a condition, the need of the hour is for industry enterprises to be competitive and embrace new methods and processes, to keep changing continually to

ensure future growth and survival. Industrial enterprises are responsive to the need for continuous change and those that are able to keep reviewing themselves concerning the environment and change that manage to transition successfully and grow. Every organization focuses on its production processes, product and product quality. Ensuring product quality is the job of the quality specialists and the management's involvement is perhaps limited to embracing quality policy and practices. The researchers address different types of superiority. For example, the study of Pil & Rothenberg [1,p.404] clarified natural efforts that enhance the environmental performance with business process automation.

However, with the changes in the world encompassing the Information Technology revolution, globalization and other factors, the entire concept of carrying on business has undergone a 360-degree change. In such an environment where information technology is widespread, the automation of business processes is a critical issue. Business process automation uses technology to automate processes, thus increasing efficiency and helping achieve business goals. The process is the actions and activities that move the business toward a goal. By using software systems to make them automatic, the company can cut operating costs by up to 90% and decrease the time it takes to get things done. When a company plans to streamline business processes, it is only for one reason: to improve the day-to-day operations and make them more efficient. Streamlining business processes involves optimizing and improving the efficiency of various workflows within an organization. Here are some strategies that are often considered:

- Process Mapping and Analysis;

- Standardization;
- Modelling and Notation;
- Automation and Technology.

Process Mapping and Analysis: Start by mapping out the current processes to understand how they work. Process mapping and analysis are fundamental steps in optimizing workflows and enhancing organizational efficiency. With understatement, it is a technique used to visually represent and understand the flow of activities, tasks, and decisions within a process. It involves creating a diagram that outlines each process step, the inputs and outputs at each stage, and the interactions between different elements. The goal is to identify inefficiencies, bottlenecks, redundancies, and opportunities for improvement.

Toyota's Lean Manufacturing System is a prime example of successful process mapping and analysis implementation. The company used this organization its manufacturing processes and identify areas for improvement. Toyota used process mapping to map out its manufacturing workflows visually. This allowed them to understand how different stages in the manufacturing process were connected and where inefficiencies might exist. Through this analysis, Toyota could identify wasteful activities, such as over production Organization, and excess inventory. These insights helped them streamline their processes and minimize non-value-added steps. Toyota's process mapping and analysis also revealed opportunities for just-in-time production. Toyota reduced inventory costs and improved overall efficiency by producing goods only when needed. Toyota achieved remarkable results by implementing process mapping and analysis through Lean Manufacturing System. The company

significantly reduced waste, improved production efficiency and improved product quality.

Standardization: Standardization is the practice of establishing consistent rules, methods, or specifications within an organization or across industries. It involves creating a uniform approach to tasks, processes, or products, ensuring they are executed or produced consistently and reliably. Standardization promotes efficiency, quality, and clarity by providing a clear set of guidelines that everyone follows. Implement standardized procedures and guidelines that ensure consistency between different process stages. This can reduce errors and improve efficiency.

If we are considering standardization, it is worth considering the best practices of big companies.

McDonald's is known for successfully applying menu standardization across its global chain of restaurants. McDonald's successful implementation of menu standardization illustrates the power of consistency in operations and customer experience. The company has built a strong brand and maintained customer loyalty across various cultures and regions by ensuring its products are the same everywhere. The company has standardized recipes, cooking methods, and ingredient sourcing to ensure consistent food offerings. Menu standardization ensures that customers receive the same taste and experience regardless of the location they visit. This consistency builds brand loyalty and trust.

Additionally, by standardizing ingredients and processes, McDonald's can optimize its supply chain and streamline its cooking procedures. This leads to faster service and reduced operational complexity. Similarly, Starbucks standardizes the recipes and preparation methods for its beverages. Whether people order a latte in Baku or London, it will be made using

the same ingredients and process, resulting in a consistent taste and experience. As Starbucks expands worldwide, standardization helps maintain its brand image and customer loyalty across different cultures. Consistency builds trust among customers who know they'll get what they expect every time they order.

It may be asked that this is the food sector, is the standardization effective in industrial enterprises also? On behalf of Toyota's successful implementation of standardized work within the Toyota Production System showcases the significant benefits of process standardization in an industrial context. By defining and adhering to consistent work procedures, Toyota has achieved outstanding efficiency, quality, and adaptability levels in its manufacturing processes. Toyota's standardization practices are complemented by a culture of continuous improvement, where employees are encouraged to suggest enhancements.

ExxonMobil's commitment to standardizing safety procedures exemplifies how process standardization can contribute to the well-being of employees, the protection of the environment, and operational excellence. By establishing consistent safety protocols, the company improves its reputation, reduces risks, and reinforces its commitment to responsible operations.

Modelling and notation: In essence, it is a powerful strategy for analysing and communicating business processes in a structured manner, fostering improved understanding, collaboration, and optimization of organizational workflows. It provides a clear and structured way to depict how different activities, tasks, events, decisions, and interactions are connected within a process. Modelling and Notation process can effectively communicate details across stakeholders, including business analysts, developers, and non-technical

users. It includes symbols for various events that trigger or result from process activities. These events can represent things like the start of a process, intermediate points, and end. Businesses can visually represent their processes using industry-standard notations with Signavio Process Manager. This visual modelling approach simplifies complex processes, making them easier to understand and manage.

Signavio Process Manager is a powerful solution designed for modelling and notation in the realm of Business Process Management. It's a software tool that enables organizations to create, analyse, and optimize their business processes efficiently. One of its key advantages is Signavio Process Manager often integrates seamlessly with other enterprise systems and tools, ensuring data consistency and efficient information exchange. It supports compliance and governance by helping organizations adhere to industry regulations and standards.

Modelling and notation provide symbols for different gateways, representing branching and merging points in a process flow. This allows the company to depict how different paths converge or diverge. For example, airlines offer their reservation system, hospital admission process of patients, streamline the order fulfilment process in logistics and distribution, etc.

Automation and Technology: Integrate technology and automation tools to perform routine and repetitive tasks. This can free up human resources for more value-added activities. Automation and technology use machines, software, and digital systems to perform tasks or processes with minimal human intervention. The aim is to improve efficiency, accuracy, and consistency while reducing manual effort. As in production processes, automation in accountancy also leads to ensuring efficiency in the enterprise. One of the current

topics today is the automation of accountancy of transactions. The use of Robots for Audit Processes can be an example of this.

PwC estimates that 45% of workforce tasks can be automated, which could save an estimated $2 trillion in global workforce costs [2]. Software robots are easy to configure and do not require extensive IT knowledge. By deploying these, organizations can use robotic process automation (RPA) to automate manual tasks, such as copying and pasting data between applications or reconciling and cross-referencing data. For internal audit, RPA presents both opportunity and responsibility. By helping the organization understand and control the risks of RPA and identifying opportunities to embrace RPA within its own organization, internal audit can position itself as a trusted advisor. By automating routine tasks, the firm achieves greater efficiency, accuracy, and scalability, allowing auditors to focus on complex analysis and insights that add significant value to client financial reporting. Its benefits and results can be grouped as follows:

Efficiency: RPA automates time-consuming tasks, enabling auditors to focus on higher-value activities that require human judgment and analysis.

Accuracy: Automation reduces the chances of errors due to manual data entry and manipulation.

Consistency: Automated processes follow standardized procedures consistently, minimizing variations across audits.

Time Savings: RPA accelerates the audit process, reducing the time required for data collection and analysis.

Scalability: Automation can be scaled to handle a larger volume of data and audits, accommodating growth without a proportional increase in human resources.

1.2. The essence of the business process and its classification

Business process means any process whose input consists of reserve consumption and the output which consists of consumer value, which is the basis of the importance of the enterprise`s activity. As seen from the research, the history of the concept of business process is not so ancient. For the first time at the Massachusetts Institute of Technology in Cambridge in 1982, the idea that all the enterprise's activity consists of separate business processes was expressed based on economic considerations. Nowadays, the economic literature has many opinions and explanations concerning the business process. In my opinion, to understand its importance, it is reasonable to present the ideas of economists explaining the essence of the business process in English and Russian literature in different years in the form of the following table (Table 1).

Table 1. The essence of the business process

Years	Authors and economic literature	Meaning of business process
1982 Cambridge	Deming W.E. Quality, productivity, and competitive position. Cambridge, MA: Massachusetts Institute of Technology, Center for Advanced Engineering Study.	Any activities in the organization

1985 Harvard	Porter, M.E., Millar V.E. How Information Gives You Competitive Advantage, Harvard Business Review	An entity (defined through entry and exit points, interfaces and organizational devices, partially including the devices of the consumer of services and goods), in which the cost of the service and product being produced increases.
1990 Sloan	Davenport T.H., Shot J.E. The New Industrial Engineering: Information Technology and Business Process Redesign	A set of logically interrelated actions performed to achieve a specific output of a business activity.
1993 Massachusetts	Hammer M., Champy J. Reengineering the Corporation: A manifest for business Revolution. N-Y: Harper Collins	A set of different types of activity in which one or more types of resources are used "at the input", as a result of this activity at the "output" a product is created that is of value to the consumer
1997 Moscow	Oikhman E.G., Popov E.M. Business reengineering:	A set of internal steps (types) of activities, starting with one or

	organization reengineering and information technology. Moscow: Finance and Statistics	more inputs and ending with the needs of the product, necessary to satisfy its quality, durability, service and quality. Or: a complete stream of events in the system describing how a customer starts, leads, and ends a business.
2005 Moscow	Abdikeev, Danko, Ildemenov, Kiselev Reengineering of business processes- Moscow Publishing house Eksmo	It is an operation included in a system of operations, the purpose of which is to produce and supply services and goods.

This table not only explains the essence of the business process, but also fully reflects its evolutionary directions. In my opinion, A business process means a set of multiple internal steps taken by an enterprise to make products and present services required by the manufacturer. In general, business processes can be organized into three types, according to Mark Von Rosing [3]:

Operational processes, which establish the core business and create the primary value stream, taking orders from customers, opening an account, and manufacturing a component;

Management processes, the processes that oversee operational processes, including corporate governance, budgetary oversight, and employee oversight;

Supporting processes supporting the core operational processes, accounting, recruitment, call center, technical support, and safety training.

Dr. Mathias Kirchme carries a slightly different approach to these three types. He equates the type of support with the type of management, distinguishes the type of governance [4]:

Operational processes focus on properly executing the operational tasks of an entity; this is where personnel "get the things done".

Management processes ensure that the operational processes are conducted appropriately; this is where managers "ensure efficient and effective work processes".

Governance processes ensure that the entity fully complies with necessary legal regulations, guidelines, and shareholder expectations; this is where executives ensure the "rules and guidelines for business success" are followed.

1.3. Business processes in the industrial enterprises

The modern world economy is characterized by dynamism, instability, increased competitiveness, increased scientific and technological progress, and the development of management and economic principles. It is impossible to imagine effective management decisions in modern business without the support of information technology. It is especially impossible to imagine managing and accounting business processes, particularly in industrial enterprises, without applying information technologies. Regarding this, the preparation of questions concerning the structure of the system of automation of business processes plays an important role in finding answers to main economical questions, so that from the practical and scientific point of view, it puts the issues of the study of business processes by the management of the enterprise and automation of their accounting to the front. Because there are two interacting sides of the enterprise: the principle of accounting of business processes and their automation through the capabilities of information technologies. The interaction of these two factors leads to process automation. Manufacturing automation began in 1913 with Henry Ford and the production of his signature Model T cars. With the first moving assembly line for the mass production of an entire automobile, Ford revolutionized the production process and the automotive industry. With this radical change, assembly lines enabled each worker to refine their individual skillset, which resulted in substantial cost savings for every completed product. As technology rose in the 1970s and 1980s,

businesses started to use computers for rudimentary automation. Dull, repetitive tasks and processes shifted to machines, and humans gained the opportunity for more creative and high-level jobs. On the other hand, the automation of a business process, in whole or in part, during which documents, information, or tasks are passed from one participant to another for action, according to a set of procedural rules [5]. Research shows that there are four types of automation, progressing in complexity:

Rudimentary Automation: Rudimentary automation centres are simple jobs in industrial enterprises, giving a centralized place to store all related information. For example, using a centralized messaging tool for a topic or group allows for transparency in communication instead of hiding information in various email accounts.

Process Automation: This documents and manages business processes for task consistency and transparency. It is more powerful than basic automation and can be controlled by dedicated software and apps.

Integration Automation: More complex than process automation, integration automation enables machines to observe how humans perform tasks and repeat those actions. Humans must, however, define the rules, however. For example, industrial enterprises could integrate process management software and customer support software.

Artificial Intelligence Automation: Adding artificial intelligence to integration software enables decision-making where technological support is humanlike. The system would decide what to do with the data, based on what it has learned

and constantly analysed. Perhaps, in manufacturing, this automation can significantly reduce supply chain forecasting errors. Artificial Intelligence Automation represents a groundbreaking paradigm shift in the world of technology integration. By infusing integration software with the power of artificial intelligence (AI), we open the door to decision-making capabilities that mirror human thought processes. In this transformative landscape, the system becomes more than a passive data conduit; it evolves into an active participant in the decision-making process, drawing upon its knowledge base and continuous analysis. The integration of AI into automation processes carries profound implications. One notable impact area lies within manufacturing, particularly in supply chain forecasting. Traditionally, supply chain forecasting has been susceptible to errors arising from markets' dynamic and often unpredictable nature. However, with AI-driven automation, the game changes dramatically. AI systems, equipped to discern patterns, analyse vast datasets, and learn from past performance, can significantly enhance supply chain forecasting accuracy. They can swiftly adapt to fluctuations in demand, weather patterns, geopolitical events, and many other variables that influence production and distribution. This adaptability translates into reduced inventory carrying costs, minimized stockouts, and optimized production schedules, all of which have direct economic implications.

Furthermore, the economic benefits extend beyond the manufacturing sector. AI-powered automation can revolutionize customer service through chatbots that provide instant and personalized assistance. These chatbots, driven by natural language processing algorithms, enhance customer satisfaction and reduce operational costs associated with human customer support agents. AI-driven

automation streamlines customer interactions, making businesses more efficient and economically competitive.

Additionally, AI automation is pivotal in data analytics, offering businesses unparalleled insights into consumer behaviour, market trends, and operational efficiencies. These insights empower organizations to make informed decisions, allocate resources efficiently, and seize growth opportunities in a rapidly evolving economic landscape.

It's crucial to recognize that the economic implications of AI automation span various industries and sectors. The impact is far-reaching from healthcare, where AI-driven diagnostics can improve patient outcomes while controlling costs, to finance, where algorithmic trading and risk management rely on AI for real-time decision-making.

As we move into an era dominated by AI automation, it becomes increasingly evident that integrating artificial intelligence into decision-making processes is a technological advancement and a strategic imperative. The economic gains realized through enhanced efficiency, reduced errors, and data-driven insights position businesses and industries on the path to sustainable growth and competitiveness in an ever-evolving global economy.

1.4. Concept of comprehensive business process automation

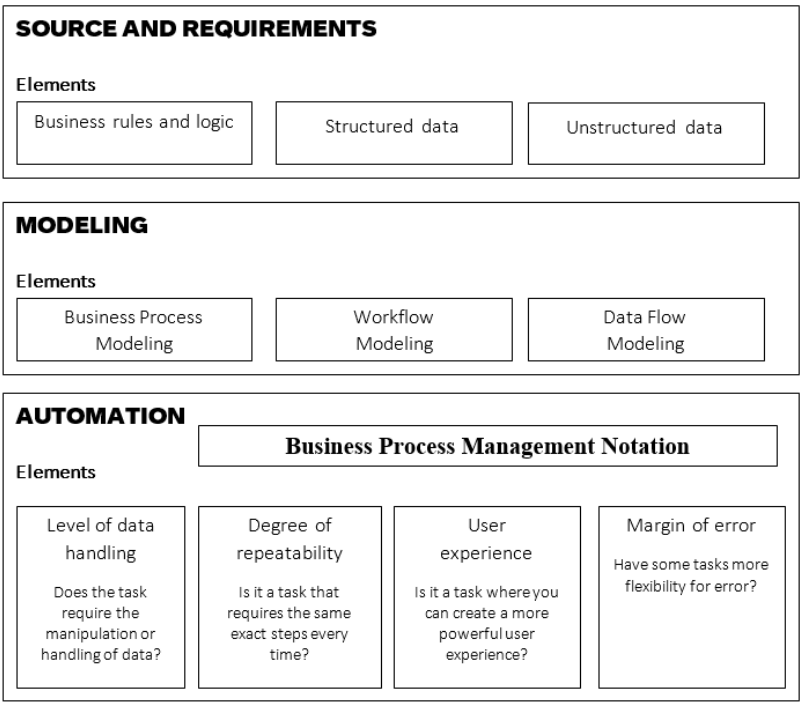
Increasingly, industrial enterprises are embracing the automation of their business processes. The degree and order of automation vary from company to company, contingent upon their strategic and operational requirements. In this context, the methods for automating these business processes are realized through specialized computer programs that can swiftly visualize schemas when inputting data.

Each of these automation methodologies can be acquired through specialized educational programs, and they are examined individually, in-depth, or a comparative overview. This process entails systematically accumulating knowledge about various models relevant to industrial enterprises. Notably, a significant portion of these modelling methodologies draws inspiration from Structured Analysis and Design Technique (SADT) principles, alongside certain algorithmic languages.

SADT, in particular, stands out as a systematic engineering and software engineering methodology employed to describe systems in terms of a hierarchy of functions. This methodology uses two primary types of diagrams: activity models and data models. Its roots trace back to the late 1960s with Douglas T. Ross as a pivotal figure, and it was formally developed and published in 1981 [6].

Our objective here is not to delve into the intricacies of SADT principles but rather to chart a comprehensive conceptual scheme for automating industrial enterprises. This comprehensive approach is depicted in Figure 1.

Figure 1. Elements of Business Process Automation



This endeavor seeks to harmonize and streamline business processes, fostering efficiency and productivity gains while optimizing the utilization of automation tools and methodologies. The initial step entails identifying the root causes of workflow issues within the company and establishing the compliance requirements for its operations. The foundational direction for automating the workflow is determined based on these prerequisites. Business process modeling serves as the primary tool for charting the workflow, enabling a comprehensive understanding, analysis, and implementation of constructive changes to the processes.

Diagrams prove invaluable in visualizing this workflow and facilitating more informed decision-making. As depicted in the diagram, each step integrates crucial elements that dictate the trajectory of automation. Our research focuses on the examination of several fundamental models for the analysis of business processes. In the diagram, I have chosen three principal models tailored to the specific needs of industrial enterprises, encompassing intricate business processes:

Business Process Modelling - respectively, modelling - reveals the functional side of the firm's existence. Business process modelling isn't a radical concept–it has been around for a while. However, the changes it can bring about in business productivity and efficiency are revolutionary. Business process modelling is the analytical representation, or simply an illustration of an organization's business processes. Modelling processes is a critical component for effective business process management. Process modelling software gives an analytical representation of 'as-is' processes in an organization and contrasts it with 'to-be' processes to make them more efficient.

Workflow modelling - describes the flow of work and is similar to the composition of the block diagram. In other words, the workflow model is the sequential series of tasks and decisions that make up a business process. Designing a workflow model allows business users to see how a process works and helps them streamline and optimize it for the best results and high efficiency. The advantage of brainstorming for creating a workflow model is in perspective. An outsider to the process might be able to offer a helpful attitude or simplify what is unnecessarily complex. If the company is involved in the process, position as either approver or contributor will influence outlook on the process. If someone

has been involved in this process for years, they will bring much historical perspective to how it was accomplished.

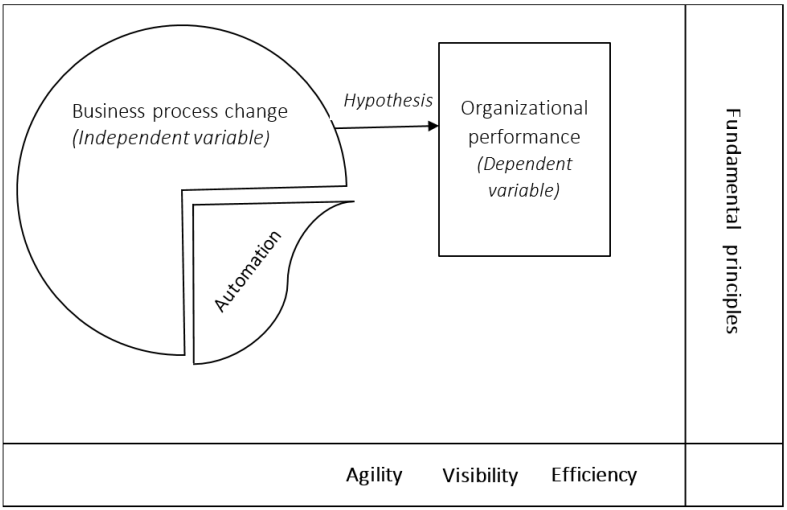
Data Flow Modelling – It describes data flows and is intended for drawing up a sequence of operations. Data modelling refers to analysing data oriented structures. First of all, in relational databases area, the model is widely known and used for depicting the data elements and their interaction in the entity relationship diagram [7, page 30]. Such a model shows entities, their attributes and the relationships between entities. The entity relationship diagrams are the standard in modelling relational databases. We assume that the enterprise software uses data stored in relational databases. But it is obvious that creating a diagram from a multiple-trace log and using it in connection to process models is unfeasible.

In developing this model, Ivan Peronja's concept, [8, page 9], was rooted in integrating critical success factors for business process changes with the performance of those business processes, as assessed through both internal and external criteria. The conceptual model employed in Ivan Peronja's research has been derived from prior studies and is visually represented in Figure 2.

I have refined this model by incorporating additional elements, specifically emphasizing automation as an integral component of business process transformation. The central premise of our research revolves around the hypothesis that posits a positive relationship between the variables inherent in the conceptual model. Beyond mere digitization and replacing physical documents with digital counterparts, automation entails a profound transformation of business processes. It's about enhancing efficiency, simplifying complexity, eliminating errors, streamlining operations, and

fostering transparency throughout the organizational ecosystem.

Figure 2. The conceptual model of the impact of business process automation



An economic perspective, the impact of automation extends across various dimensions. Firstly, it bolsters an organization's ability to navigate an increasingly complex business landscape by swiftly adapting to changes in market conditions and customer demands. This adaptability is a key driver of competitiveness and sustainability in the modern economy. Moreover, automation contributes to heightened visibility into business processes. It provides real-time insights into operational performance, enabling data-driven decision-making. In doing so, organizations can allocate resources more effectively, optimize production schedules, and respond proactively to emerging trends and challenges. The efficiency gains resulting from automation are not to be underestimated. Reduced manual intervention and streamlined workflows translate into cost savings, as fewer

resources are required to execute tasks. This cost efficiency contributes to improved profit margins, a critical factor in economic success.
Furthermore, automation enhances the overall quality of operations by minimizing errors and standardizing processes. This, in turn, leads to increased customer satisfaction and retention, positively impacting revenue and market share. Ultimately, automation catalyses organizational growth. By harnessing the power of automation to drive business process changes, companies can scale their operations, enter new markets, and explore innovative revenue streams.

The model, which originated from Ivan Peronja's work, has been expanded to incorporate the crucial dimension of automation. This approach acknowledges the profound impact of automation on business processes and underscores its significance in enhancing ability, visibility, and efficiency. Embracing automation as an integral part of business process transformation is pivotal for organizations seeking to thrive in the ever-evolving economic landscape.

Business process automation can be approached as a process change, positively affecting the organizational performance of industrial enterprises. The business process involves the quality of the accounting information system. The theories that already exist about accounting and management make more emphasized linkages, that the influence the business process of the quality of accounting information systems. On the other hand, every company has its way of implementing business process automation, but each of them has some fundamental principles. These fundamental principles for Azerbaijan's industrial enterprises are grouped by us as follows:

Understand, Simplify and Automate - before introducing automation, it is essential to understand and analyse the

existing system completely. Once that is done, the company must try to simplify it to the greatest extent possible and only after that must introduce automation and that too only if it is really required.

Integration with existing processes - all the processes running in business are different from one another. So, the automated business process should seamlessly integrate with the existing processes. The integration can happen at various levels of the automation process, but all the automation processes need to work smoothly with the environment.

Consistency - the automated processes should be consistent with other processes and their corresponding inputs and outputs.

Step-by-step approach - automating all the necessary tasks simultaneously is unnecessary. Companies can divide the job into several stages depending on funds, resources and overall logic of the business processes.

Process flexibility - over some time, business processes tend to change. The automation solutions should be flexible enough to incorporate and reflect these changes.

Simplicity - automation aims to make the business processes more straightforward and not more complicated. If the process requires a lot of human intervention after automation, the company will understand that something is wrong.

Training the staff - for efficient functioning of business processes, it is essential for the staff to have a complete understanding of the workflow. The better they know a process, the better it will function.

As a result, it is evident that each of the workflow representation methods presented holds a unique position and role in the realm of automation. Many industrial enterprises in Azerbaijan have yet to define their business processes. From this standpoint, the automation journey

should commence at the initial stage, involving the creation of a comprehensive registry of these business processes. I recommend the utilization of the Business Process Modelling method within industrial enterprises.

The initial phase of modelling typically involves pen and paper. However, for a business process to be executed, it must be digitized in a format that a workflow engine can comprehend. Business process modelling software enables organizations to transform their processes into a digital format that can be seamlessly transitioned into live automated operations. Applying this model at the outset yields practical benefits, which serve as the foundation for future automation endeavours. These include clearly understanding how the process functions, ensuring consistency and control, identifying and eliminating redundancies and inefficiencies, and establishing well-defined starting and ending points for the process.

As described earlier, emulating processes using diagrams is essential for visualizing their functioning. The journey towards business process automation should be treated as a project centred on automating accounting within the enterprise.

It is imperative to emphasize the necessity of automating processes using suitable tools and software assurance. Leveraging automation solutions tailored to the needs of industrial enterprises is crucial. Subsequently, measuring the time and effort involved using key performance indicators enables organizations to draw objective conclusions regarding areas that require improvement. This, in turn, facilitates the identification of gaps and initiates a continuous improvement cycle, starting from the initial stage. This approach ensures the ongoing enhancement of accounting processes and document flow within industrial enterprises.

PATH 2. ERP SYSTEM IMPLEMENTATION

In the current era of complex global economic and financial operations, traditional methods struggle to regulate them effectively. Over the past five decades, Enterprise Resource Planning (ERP) Systems have emerged as a solution.
This chapter delves into the methodological aspects of SAP ERP system implementation. It examines the project management perspective, outlining the essential phases and activities for successful implementation across all enterprise departments. Additionally, it scrutinizes the advantages and drawbacks of various implementation strategies. The chapter also explores multi-model database systems and draws from the author's extensive experience to identify critical factors that can lead to failures in implementing SAP's HANA technology.

2.1. ERP system implementation trends in the new millennium

The modern world economy is characterized by dynamism, instability, increased competitiveness, scientific and technical progress, and the development of management and economic principles. Cooperative information systems are implemented to increase efficiency and minimize workflow delays. For this, one of the main factors in the development of computer technology is the orientation of manufacturers to software. Because in the end, what is important for the user is not the equipment but the automatic accounting and controlling system. Therefore, it is

important to study the methodology of how to apply this system. In this context, the new millennium focuses on proven methods and lessons learned from dealing with projects in diverse industries and settings. It brings new technology opportunities to the industrial environment.

ERP system is a software suite that integrates various business processes and functions into one unified system. It enables companies to manage and streamline their operations across different departments, such as finance, sales, procurement, human resources, and production. Implementing ERP helps companies streamline their operations, improve efficiency, reduce costs, enhance decision-making, and gain a competitive advantage in the market. More precisely, companies embark on the implementation of ERP systems for a multitude of reasons, which can be categorized into six overarching directions, as outlined below:

1. Integration: ERP provides a unified platform for all business processes, allowing for seamless integration and real-time access to data across the organization. This eliminates data silos and improves communication and collaboration between departments.

2. Process automation: ERP automates manual and repetitive tasks, reducing the need for manual data entry and minimizing human errors. This helps improve the efficiency, productivity, and accuracy of business processes.

3. Data visibility and reporting: ERP offers robust reporting and analytics capabilities, providing companies with real-time insights into their financial, operational, and customer data. This enables better decision-making, forecasting, and strategic planning.

4. Scalability and flexibility: ERP can handle a company's growth and changing needs. It allows organizations to add

new modules and functionalities as their requirements evolve, ensuring the system can adapt to their business processes.

5. Standardization and compliance: ERP promotes standardization of processes and data across the organization, ensuring consistency and compliance with industry regulations and best practices. This facilitates audits and regulatory reporting.

6. Customer satisfaction: A well-implemented ERP system improves customer service and satisfaction by enabling faster and more accurate order processing, inventory management, and delivery tracking. It also allows businesses to personalize customer interactions based on their data insights.

Along with all these factors, it should be taken into account that implementing the ERP system is a complex process and that the ERP system is more complicated. Most enterprises choose the ERP system giant SAP products today, which is making significant strides in this sector by introducing S/4 HANA.

SAP HANA (High-Performance Analytic Appliance) is an in-memory database and application platform designed to process large volumes of data in real-time [11]. It combines a single system's database, data processing, and application platform capabilities. Industries like manufacturing and utilities use SAP HANA to predict equipment failures and schedule maintenance tasks before breakdowns occur. Organizations use SAP HANA to perform complex real-time analytics on large datasets, helping them gain insights into their business operations, customer behaviour, and market trends. SAP HANA enables businesses to analyse supply chain data, forecast demand, and optimize inventory and distribution processes. Also, in the modern digital landscape,

data has become the lifeblood of businesses. Organizations constantly seek ways to process and analyse data faster and more effectively to derive meaningful insights and stay competitive.

Projects like implementing the SAP ERP system should address organization and process issues and explore how modern technology tools such as the cloud solution can support effective project management and project success. Our research will address current trends in collaborative project management, conflicts and resolutions concerning teamwork and information sharing. Especially, SAP projects will have to benefit from the technological opportunities of the new millennium. That expands the guidelines and the use of modern technology and spends more time on project analysis, costing and issue management.

Monitoring the latest technological progress helps improve SAP project implementations and projects are implemented using internet tools and cutting the implementation time. This advantage is important for project managers, consultants, clients and business partners.

Exploring SAP comprehensive solutions for all business processes across all industries is important to find the solutions to run businesses better and simpler enterprise-wide. It is no coincidence that most Azerbaijani universities have started university-industry cooperation with SAP Global, emphasizing the importance of cooperation in this field. On October 10, 2019, under the joint organization of SOCAR and SAP Global, the "SAP Energy" forum was held with the participation of representatives of oil and gas companies of the CIS countries, where SAP systems were successfully implemented by "Rosneft", "Lukoil", "Gazprom". ", "Gazprom Neft", "Transneft", "Zarubejneft", "SIBUR", "TAIF", "Salim Petroleum", "Kazmynaygaz", "Belorusneft", "MOL", "OMV"

etc. were represented and they shared their best practices. Based of the gained experience, I can tell that, today's trend in software management is performance and speed. That's why implementing internet technology will be the most efficient technique in the future. Customers are increasingly looking for solutions that not only support their critical business processes and minimize risks but also deliver fast ROI and lead to a lasting reduction in IT total cost of ownership. SAP focuses on solutions designed for specific processes – predefined combinations of applications, services, and content for resolving urgent business problems. Trends always change according to new requirements, so software developers and companies must work on products continuously to meet these requirements.

Another trend is global implementations that enable customers with multi-site SAP installations to efficiently manage their business processes as part of a global rollout. It is a container that bundles standardized business processes and contains links to process-specific developments, configuration and test data. From this point of view, taking into account the topicality of the topic, a new approach was introduced and major implementation strategies are collected in this chapter.

On the other hand, the implementation of the SAP system in companies that occupy key positions in the economic chain of our Republic is relevant and the development of the methodology of such projects, as well as the study of the advantages of strategies in international practice, are among the main issues raised during the research.

2.2. Briefly about SAP

Considering the 44 years history of the company, which was accomplished with an intensive and successful timeline, it is not easy to match this in a few sentences. The life history of the company focuses mainly on a technical information and innovative ways that the company achieved during these years.

SAP was founded in 1972 by five program developers – entrepreneurs: Claus Wellenreuther, Hans-Werner Hector, Klaus Tschira, Dietmar Hopp and Hasso Plattner. Starting with one customer and a handful of employees, SAP set out on a path that would not only transform the world of information technology, but also forever alter how companies do business. Just in one year, the company succeeded by earning around DM 620,000 in revenue and employing nine more professionals.

In 1973 the company developed a financial accounting system – R3 which was the cornerstone for the other system modules and consequently named SAP R/1. Several companies, including the tobacco company Rothandle and the pharmaceutical firm Knoll became the clients of SAP. During the next one-year period, SAP achieved around 40 reference customers and converted its RF system from DOS to OS operating system, which gave high flexibility to the customers. The servers were running in IBM servers. Clients could handle their business processes more conveniently by using purchasing, inventory management, and invoice verification with SAP's RM system. Later on, during the next four years, the company continued to grow, made some changes in legal transitions, improved the modules and did the first debut abroad and in the French market by developing

a French-language version of the company's accounting software in an in-house project.

From 1980 to 1985 the company improved SAP R/2, achieving up to 250 new customers by spreading not only in Germany, but also in Austria and Switzerland. By all means, the company also made a high revenue, around DM 61 million, and employed up to 250 professionals. The new modules and RK, PPS, and RP modules were added to the list of services provided by the system. SAP AG International was founded and was critical for the abroad market and further growth.

In the next 5 years, till 1990's the company took the way on improvement SAP R/3 accompanied by critical events such as new subsidiaries in Netherlands, Great Britain, France, Spain, Denmark, Italy, United States, Sweden and introduction of the new HR module. Moreover, SAP consulting was established, which was a good opportunity for the new customers, increasing to 1000. The 1000th customer of the company was DOW Chemicals. Meanwhile, SAP began developing RIVA – a utility companies billing and administration system–to meet select industries' requirements.

In 1989 the more user-friendly interface for SAP R/2 was introduced to the customers, and several programming developments were achieved, such as the ABAP/4 programming environment. Data centres were extended up to 1,224MB, run on IBM, Siemens, DEC, and Hewlett-Packard platforms. By the end of 1990's the company acquired 50% of German software company Steeb and took over the software firm CAS outright. Besides the achievements, the company invested around 30% of its revenue in research and development. After the reunification of West Germany with the East, company established one more office in Dresden as

a joint venture SRS in Dresden along with Siemens Nixdorf and Robotron. The company also opened a branch office of its own in Berlin. Meanwhile, its 1,700 employees help surpass DM 500 million in revenue [14].

Briefly about 1990's to 2000. By the beginning of the 1990's SAP presented the first applications in its SAP R/3 system at CeBIT in Hanover, with its client-server concept, uniform graphical interface, dedicated use of relational databases, and support for servers from various manufacturers. That was a new step to the potential market of midsize companies, as well as the branch offices and subsidiaries of larger corporate groups. The company concluded a cooperative agreement with the largest Russian software company ZPS and began developing a Russian version of SAP R/2.

In 1992 SAP brought R/3 to the general public and enters a new level of growth. Expecting high demand for SAP R/3, SAP augments its partner strategy. Independent consulting firms, which SAP refers to as "logo partners," support customers in implementing the new system. Just one year later, the company started to work with Microsoft, the world's largest software maker, to port SAP R/3 to the Windows NT operating system. SAP also begins participating in the IXOS project, a joint undertaking involving developing and marketing an electronic archiving system for original documents. The same year the company delivered a version of SAP R/3 with support for kanji characters to the Japanese market. SAP R/3 was also being ported to SUN hardware, enabling it to run on all relevant RISC platforms.

1994 was memorable for SAP with the entrance to Chinese market, the successful contract with IBM – partnership for using SAP R/3 to manage IBMs global business

processes, DM 1,8 Billion revenue and the development a retail solution for SAP R/3 by acquiring a 52% holding in DACOS Software GmbH.

Later in the next 5 years, the company sold its SAP HR module to the Burger King, Inc., made a huge contract with Deutsche Telekom AG in the telecommunications industry and sold the SAP R/3 to Coca-Cola, Deutsche Post AG, Daimler-Benz, and General Motors as well. At the end of 1997 SAP released 4.0 of SAP R/3 and delivered it to pilot users. Moreover, the company entered the New York Stock Exchange (NYSE) in Q3 1998. The aim was to raise its profile and presence in the world's biggest and most important market for information technology and strengthen its relationships with shareholders. The major success in 1999 was “mySap.com”. The soccer club FC Bayern Munich, the financial services provider MLP, and others signed up in October, while November and December witness the arrival of Hewlett-Packard, the Ford subsidiary Visteon, and the pharmaceutical group Hoechst Marion Roussel. This reorientation combined e-commerce solutions with SAP's existing ERP applications based on cutting-edge Web technology. Along with its products, SAP's self-image was changing due to mySAP.com. The company reorganized its Executive Board areas and founded the German Internet subsidiary e-SAP.de, reflecting an even stronger focus on the customer in the Internet age. Moreover, the EnjoySAP initiative served as the foundation for mySAP.com's success. Studies conducted in the summer of 1999 by Mannheim University clearly showed how much time customers can save in training and everyday use with mySAP.com.

By the end of 2000 compared to 1999 the revenue of the company increased by 23% and was €6.3 billion, which was

generated by the workforce numbered more than 24,000 employees in over 50 countries [15].

The years 2000 to 2010. The beginning of the decade was cited by taking over Top Tier, the leading company in the corresponding Israeli market. Parallel, my SAP was developed and the new research labs were established in several countries, industry points, as well as in India, Japan, Israel, France, Bulgaria, Canada, and the United States.

Another successful introduction from the company was SAP NetWeaver. In 2006 SAP and Microsoft introduced Duet, the first product of the two companies' joint efforts in development, support, sales, and marketing. This software enables users to quickly and easily integrate Microsoft Office and SAP supported business processes. Moreover, at the first SAPPHIRE event of the year in Orlando, Florida, SAP announces the general release of its flagship application, SAP ERP. During this time, the company faced different changes in the top management, but it does not influence its growth.

However, after the global financial crisis, SAP met some problems. Though these problems were aimed at cut-offs, the company did not decrease the costs by resigning the people. Meanwhile, the company supports its customers with special programs designed to help them emerge from the crisis with the strength to succeed. Thanks to these programs and cutbacks, SAP can improve its operating margin despite the difficult circumstances. Moreover, the new SAP Business Suite seven software was successfully presented to help businesses optimize their performance and reduce IT costs. SAP demonstrates its importance of social involvement by supporting PlaNet Finance, an international non-profit organization that aids microfinance institutions.

SAP and PlaNet Finance aim to optimize microfinance with financing, new technologies, and expanded value chains. By the end of 2010, the company acquired several companies in different countries, having around 50,000 clients [16].

From 2011 to present. In-memory, cloud computing, and business network support record results. By the beginning of the new decade, SAP HANA was announced as an in memory computing, enabling the customer to get the information at least ten times faster. Demand to this product was so high and the product itself was so successful that, company made the revenue of EUR 1.5 billion from this product in the final quarter of 2010. SAP announced its growth plans as well as, to expand in emerging market economies such as Brazil, India, Russia, and especially China by investing some EUR 2 billion in the mid-market sector alone. Parallel the company strived to develop the business in cloud – computing.

In 2012 SAP acquired Arbia and made progress in procurement solutions. That made the company a leader in the fast-growing inter-enterprise cloud-based business networks segment. Also, investment and growth in China, the world's second economy, continued by 30% growth revenue in a software license.

One year later SAP reported €16.9 billion in non-IFRS total revenue, with 11% constant currency growth in software and cloud subscription revenue and €1.2 billion of that was generated by SAP HANA, in which the entire SAP Business Suite was moved. The company also acquired HYBRIS, a widely recognized leader in commerce technology. The move positions SAP to deliver the next-generation e-commerce platform, with the choice of on-premises or cloud deployment, as enterprises worldwide seek to optimize the customer experience for businesses and consumers across an

ever-growing number of delivery channels, devices and touch points.

In 2014 SAP completed the acquisition of Concur, the largest software-as-a service investment history. It changed its legal form from an “AG” company to a European Company (Societal Europaea, SE), underscoring the company's international nature. Now 44 years and approximately 300,000 customers stronger. Based in Walldorf, Germany, SAP is one of the world’s largest software companies with regional offices in 130 countries [17].

2.3. SAP Project management

Implementing ERP system is one of the most challenging projects any company, regardless of size, can undertake. Success does not come easily; those who implement only for an immediate return on investment are in for a rude and expensive awakening. Most companies implement ERP systems just to stay competitive. The process has to be part of the business objective and it has to be clear that a successful “go-live” isn't the brass ring. This fateful date, set early in project planning, cannot be viewed as the end goal or even the end of the project, but rather only a milestone along the road to true goal-realizing the benefits [18].

As defined in the support centre information of Ernst Young [19, p. 21], “a business program or program is a group of related projects that address a common business objective or initiative. All the individual projects within a program must be completed successfully for the business program to meet its objectives. Business programs provide a means of organizing and managing large or long-term project efforts.” It may consist of both IS projects and non-IS projects, such as a business process redesign project, sales, procurement, marketing or a manufacturing project.

The methodology of the program management is an extension of the methodology of the project management. The project management timetable usually covers the program management. It is designed to support the management of efforts that exceed the standard project guidelines. As a general approach, a project is a group of related work activities, organized under the direction of a project manager, which when carried out, will achieve certain objectives [19, p.7]. A project has a project charter, defining

project scope, deliverables, tasks, duration and budget. Existing drudgery is examined as a project and completed with project deliverables. The basic driver for a project- based work has been our transformation to a knowledge society.

In the context of the knowledge economy, a comprehensive grasp of project concepts and terminologies is essential. Moreover, the acknowledgment of project methodologies and standards is necessary. To this end, a review of the SAP design methodology is deemed appropriate. Design Thinking stands out as a design methodology that distinguishes itself from traditional design approaches. Some authors have characterized it as more creative and user-centred than conventional design methods. Design Thinking has gained prominence as a recent buzzword in the design community.

In the 1960s, designers searched for a design methodology, also termed "design research," that could align with the natural sciences approach. This approach aimed to comprehend and enhance design processes and practices in a broader context. Design Thinking presents itself as a creative and collaborative problem-solving approach. At its core, it centres on individuals. This user-centric methodology relies on empathy to understand the needs of end-users or customers, leading to innovative solutions. SAP's approach to innovation, focused on human-centred principles, commences with Design Thinking, involving empathetic understanding of end-users to uncover their genuine needs. Notably, it has found successful application in resolving business challenges at companies like Toyota, Intuit, SAP and IBM.

One reason for the widespread adoption of Design Thinking across industries is its effectiveness in dissecting problems within complex systems, be it in business,

government, or social organizations. Design Thinking yields experientially desirable, technologically feasible, and financially viable solutions. Therefore, I believe that developing an application strategy rooted in the fundamental principles of the Design Thinking methodology is a suitable course of action.

Furthermore, when deciding whether to apply Agile or Waterfall project management principles to an SAP HANA implementation, it is imperative to consider several critical factors. The selection of the most appropriate methodology should align with the unique characteristics and requirements of the project.

The agile methodology, characterized by its flexibility and adaptability, is suitable for projects where requirements may change or evolve. This approach prioritizes customer involvement and iterative development, facilitating incremental value delivery. Agile methodologies can be particularly beneficial when addressing the uncertainties and complexities often associated with SAP HANA implementations.

On the other hand, following a structured and sequential process, the Waterfall methodology becomes advantageous when project requirements are well-defined and anticipated to remain stable. Waterfall's emphasis on comprehensive documentation ensures predictability in terms of timelines and budgets. It may find relevance in large-scale, regulated, or mission-critical SAP HANA projects.

A thorough analysis of the specific requirements, complexities, and constraints of the SAP HANA implementation project is essential to make an informed decision. Considerations such as project size, regulatory compliance, organizational culture, and stakeholder involvement should guide the decision-making process.

Additionally, consultation with experienced project managers and experts in Agile and Waterfall methodologies can provide valuable insights into aligning the chosen approach with the project's goals and constraints.

A robust theoretical framework should underpin the chosen methodology, with justification based on the project's unique characteristics and objectives. Furthermore, the research should explore the implications of the selected methodology on project outcomes, encompassing project success, efficiency, and stakeholder satisfaction.

The decision to implement the Waterfall project management methodology in the context of SAP projects hinges on several pivotal considerations. Waterfall becomes particularly pertinent when specific project conditions align harmoniously with its inherent characteristics, ensuring an effective and efficient implementation process. This methodology thrives when project requirements are impeccably defined and anticipated to remain relatively unaltered throughout the project's duration. This approach excels when comprehensive upfront planning and meticulous documentation are paramount, which is often the case in SAP implementations where precision is crucial.

Moreover, Waterfall aligns seamlessly with SAP projects operating within industries subject to stringent regulatory requirements, such as healthcare or finance. In these sectors, where adherence to compliance standards is non-negotiable, Waterfall's emphasis on traceability and documentation serves as a robust foundation for meeting regulatory obligations.

SAP projects, frequently characterized by their complexity and multifaceted nature, stand to benefit significantly from the structured progression offered by the Waterfall methodology. When dealing with intricate SAP

implementations marked by numerous dependencies and stakeholders, Waterfall provides a clear path for precisely managing these intricacies.

In scenarios where direct customer involvement in SAP projects is limited or not operationally feasible, Waterfall offers a structured approach to project completion. This is achieved without the necessity for frequent customer interactions or the iterative feedback processes often associated with Agile methodologies.

Furthermore, organizations within the SAP project domain that embody a risk-averse culture may find Waterfall particularly appealing. Its predictability and plan-driven nature align harmoniously with a preference for minimizing unexpected changes and deviations from established project plans. For SAP projects constrained by fixed budgets and timelines, Waterfall's linear progression lends itself admirably to resource allocation and cost management. This methodology aids in optimizing the utilization of resources within predetermined budgetary constraints and timeline parameters.

Nevertheless, it remains imperative to acknowledge that while Waterfall holds distinct advantages within the realm of SAP projects, it may not be the most suitable approach for endeavors characterized by evolving requirements, frequent customer collaboration requirements, or the need for agile responses to dynamic market conditions. In such instances, Agile methodologies, such as Scrum or Kanban, may emerge as more fitting alternatives.

The decision to implement the Agile project management methodology in the realm of SAP projects hinges on several pivotal considerations. Agile becomes particularly pertinent when specific project conditions align harmoniously with its inherent characteristics, ensuring an effective and efficient

implementation process. In SAP projects, the Agile methodology excels when project requirements are subject to change or refinement as the project progresses. This approach prioritizes flexibility and adaptability, which are often essential in SAP implementations where evolving business needs and technical challenges are commonplace. Moreover, Agile is inherently customer-centric, making it a valuable choice for SAP projects where close customer involvement throughout the project lifecycle is vital. Regular interactions with customers and stakeholders ensure the SAP solution aligns precisely with evolving business requirements. Agile thrives on iterative development, allowing teams to deliver incremental value with each sprint or iteration. This approach can be particularly advantageous in SAP projects, where the complexity of the ecosystem often benefits from a phased, incremental approach.

Furthermore, Agile embraces the concept of responding to change, which can be vital in SAP projects where evolving requirements or shifting market conditions necessitate rapid adaptation. Agile offers a robust framework for achieving these objectives for SAP projects where the priority is to deliver quickly and make frequent adjustments based on feedback. It allows for the agile handling of evolving priorities and the seamless integration of customer feedback into the development process.

However, it's important to recognize that while Agile holds distinct advantages within the realm of SAP projects, it may not be the most suitable approach for endeavours characterized by stable, well-defined requirements that are unlikely to change significantly throughout the project. In such instances, a more structured methodology like Waterfall may be preferable. I examined the possibilities and advantages of using agile and waterfall methodology in SAP

projects. In my opinion, the use of the hybrid approach is more reasonable. The importance of the hybrid approach for SAP projects lies in its ability to leverage the strengths of both Agile and Waterfall methodologies while mitigating their respective limitations.

In SAP projects, a range of activities is typically encountered, from initial planning and requirements gathering to system configuration, testing, and deployment. Some phases can benefit from Agile flexibility and iterative nature, while others may require Waterfall's structure and documentation focus. With the hybrid approach, the methodology can be tailored to match the specific needs of each project phase. A hybrid approach may also be a viable option, combining elements of both methodologies. This approach allows flexibility in selecting the most suitable method for different project phases.

During the initial phase of an SAP project, requirements gathering and definition occur, where the detailed documentation and planning inherent in Waterfall can be advantageous. Once requirements are well-defined, the transition to Agile for implementation phases becomes feasible, accommodating changes more fluidly. Complex integration, often a part of SAP projects involving existing systems and data migration, can benefit from Waterfall's structured approach, providing stability during these critical integration phases. In contrast, Agile can be applied during phases focused on user experience or front-end development, allowing for faster adaptation to user feedback.

Waterfall can be employed to meet compliance needs in regulated industries like healthcare or finance, where compliance requirements demand thorough documentation and traceability. Meanwhile, Agile can be used for user-centric aspects of the project. Resource allocation, a critical

consideration in SAP projects, can be managed strategically through the hybrid approach. It allows the optimization of costs and timelines based on the project phase's unique requirements. Effective risk management is another advantage of the hybrid approach. High-risk phases where critical stability can be managed using Waterfall, while lower-risk phases requiring adaptability can utilize Agile methodologies.

Stakeholder involvement is essential in SAP projects, often involving diverse stakeholders such as business users, IT teams, and external partners. Agile emphasis on collaboration and customer involvement ensures that stakeholder feedback is incorporated effectively.

Finally, the hybrid approach accommodates changes in requirements in SAP projects that bring significant changes to an organization's processes and systems. It allows for agile responses to unforeseen challenges, making change management smoother.

In a broader perspective, the significance of the hybrid approach in SAP projects stems from its ability to adeptly traverse the various project phases. This approach leverages the strengths of both Agile and Waterfall methodologies while effectively addressing the intricate challenges and uncertainties frequently encountered in SAP implementations.

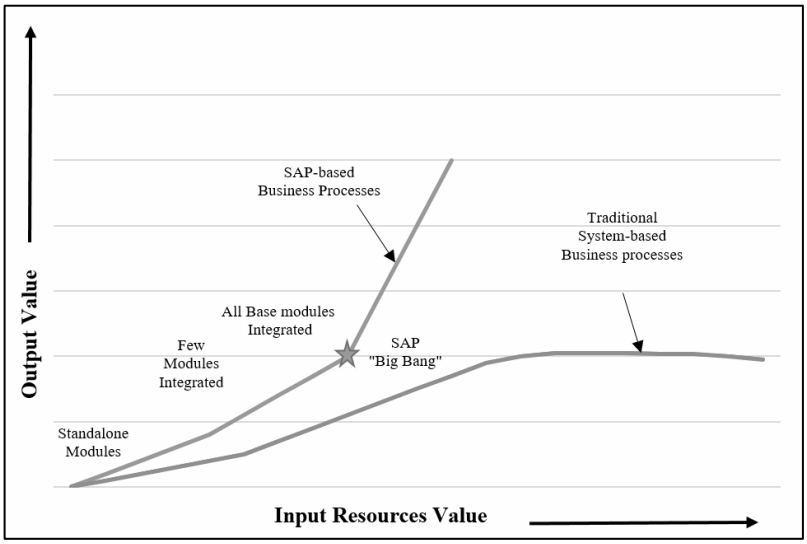
Furthermore, the impact of this hybrid approach extends beyond SAP implementation as well as HANA system migration; it also extends to the implementation of automated management systems when paired with the appropriate methodology. the hybrid approach, when viewed through both economic and scientific lenses, has a far-reaching impact. It drives revenue growth, generates ongoing cost savings, enhances market positioning, promotes

adaptive learning, empowers data-driven insights, and encourages interdisciplinary collaboration. These effects extend well beyond SAP projects, contributing to the organization's overall economic prosperity and scientific advancement. These endeavours introduce fresh value to the organization, fundamentally redefining the concept of value addition. The determinants that characterize this added value closely align with the diverse functions traditionally associated with ERP systems. These determinants play a pivotal role in shaping and quantifying the value contributed by such systems within an organization:

- Time (such as the cycle time)
- Flexibility (options, customization and composition)
- Responsiveness (lead time and number of handoffs)
- Quality (rework, rejects and yield)
- Monetary benefits.

As organizational and environmental conditions become more complex, globalized and therefore competitive, processes provide a framework for dealing effectively with the issues of performance improvement, capability development and adaptation to the changing environments. Along the value stream of ERP implementation, the analysis of the absence, creation, add value or destruction of value critically determines the necessity and effectiveness of the process step. Understanding value-adding and non-value-adding processes is a significant factor in designing, automating and optimizing business processes. The value add can be defined typically as the ratio of output values to the input resources value. The following graph is generated if we look at the issue as a functional dependency (Figure 3).

Figure 3. Relationship between output value versus input resources value for SAP project implementation



The graph shows the relationship between output value and input resources value for SAP-driven business processes as compared with business processes based on traditional management systems. This also indicates that only when SAP modules are operational and fully integrated does the system truly begin to utilize information as a resource resulting in massive gains in productivity. Until then the system is only functioning as a recording system albeit an efficient Big Bang implementation of SAP.

2.4. Similarities in SAP implementation strategies

Planning a sophisticated ERP project should not be taken lightly or with little forethought. As mentioned before, there are enormous potential costs associated with such an undertaking. In addition to the high costs paid out before the go-live date, companies could and have incurred major expenses that could not fully develop a comprehensive plan. Planning should be identified with maintaining scope during an implementation. Cost overruns and developmental delays are costly, sometimes fatal results of ineffective planning. Home Depot, Lockheed Martin and Mead Corporation attributed their success to planning [20]. Lockheed planned a well-equipped team to do the implementation, allowing them to make a solid plan for achieving their stated goals. Mead Corporation, a large pulp and paper manufacturer researched the notorious Hershey Foods implementation to learn what they would need to do differently to succeed, or more specifically, to avoid failing. Consequently, Mead successfully implemented nine separate modules simultaneously within their operations.

As the result of observations, it can be concluded that, all methodologies for implementing SAP software have a few common elements. First and most important, they are all structured. They consist of phases, which are broken down into tasks, further broken down into activities and finally into work steps. Almost all methodologies have four phases that can generally be thought of as follows. However, with different names: Initiate phase includes planning and costing the effort, determining the internal staff and outside help

necessary, defining the scope of the implementation, and doing the initial business case justification for the undertaking. Think is the phase in which the current or "as-is" state of both systems and processes is analysed and what is wanted from the "to-be" state determined. In the work phase, the ERP systems are configured to the specifics of a company's business, then tested and deployed. The watch phase entails measuring the results achieved against the expectations, and supporting, maintaining, and upgrading the system as necessary. According to the standard Accelerated SAP Methodology [21], the below (Table2) includes the roadmap and brief content like in the literatures [23,24].

Table 2. Roadmap of SAP implementation

Phase 1 – Project Preparation - Change Charter – Goals and objectives of organizational change management - Project Plan – This is a first cut focusing on milestones and work packages; details to come - Scope – Sets the initial definition of the project; input from sales cycle - Project team organization - Sets the who of the project: - Standard Procedure – sets the why and how of the project
Phase 2 – Business Blueprint Requirements reviewed for each SAP Reference structure item and defined using Accelerated SAP templates.
Phase 3 – Realization Realization – Master Lists – Define business scenarios and SAP transactions to be realized in the system. - BPP – Business Process procedures representing SAP transactions; used for unit testing & documentation.

- Planning – Defines how the configuration will be done and how it will be tested. - Development Programs – Provides details of the external programming requirements. - Training Material – End user training material and process documentation
Phase 4 – Final Preparation - Stress & Volume tests – Plans for confirming the production hardware's capabilities. - Cutover Plan – The details of how to move to the production environment and go live. - Conduct End User Training – Delivery of the necessary levels of SAP End User training prior to going live
Phase 5 – Go live & Support Ensuring system performance through SAP monitoring and feedback

We should mention at this point that these phases are the same during migration to HANA which, a multi-model data management engine takes full advantage of the capabilities of its hardware to minimize data movements, thus increasing application speed and agility as it analyses real-time data. Accelerated SAP is SAP's current standard implementation methodology. It contains a roadmap, a step-by step guide that incorporates experience from many years of implementing SAP. Quality checks are incorporated at end of each phase to ensure quality of deliverables and monitor critical success factors. Another important aspect of an SAP implementation is the implementation strategy the business decides to pursue. A strategy defining the functional scope and regional coverage of the implementation is chosen by analysing the cost, resource requirements, risks and expected

returns of the implementation. At a high level, we can define three implementation strategies:

Step-by-Step Implementation: Gradual, incremental approach; lower upfront costs and lower risks; involves phased implementation, typically starting with core functions; allows for fine-tuning and adaptation over time; Eases workforce adaptation and change management.

Big Bang Implementation: Rapid, comprehensive change; higher upfront costs and risks; entire ERP system is introduced at once; potential for immediate efficiency gains; requires intensive preparation and testing.

Rollout Implementation: Moderate upfront costs and risks; system rollout in phases, covering various functions; combines advantages of both Step by step and Big Bang; offers gradual adaptation while achieving some immediate benefits. Each one has its pros and cons and selecting a strategy requires an in-depth analysis of the above-mentioned criteria. The strategy should also define the business' approach and preference for technical development, i.e. adding customized code to core SAP, in the form of user exits, custom transactions and modifications. The opposite implementation strategy of using SAP as delivered is often called "Vanilla SAP". This is a big challenge for the business to adapt the processes to the software but results generally in minimum cost and risk for the implementation, and minimum maintenance after go-live. The three major implementation strategies will be compared by their advantages and disadvantages in the next paragraphs.

2.5. Step-by-step implementation

Before commenting on the strategies, it is worth looking at an interesting statistic. As per the survey done, the projected statistics reveal astonishing facts – Only 35% of the projects are successfully completed whereas 45% are unsuccessful either due to budget overrun or unable to deliver the required functionality within the stipulated time frame, or else completely failed to deliver and rest 20% of the projects are cancelled prior to the completion stage [22, p.2]. Because the ERP system brings in a lot of diversity among the system stakeholders – which significantly exacerbates system development problems since there are varied and conflicting needs and requirements most of the time. To avoid such failures in the reality of Azerbaijan, it is necessary to approach each strategy systematically and gather the interested parties together to choose the right strategy. Above all, it should be noted that a step-by-step implementation is characterized by implementing the software in small steps and generally concentrates on simultaneously implementing a few related modules. Planning and implementing a successful system is a complex enterprise not a single procedure but several simultaneous ones. Together, they comprise the basic strategies, systems, and procedures that are essential to an effective program. Because every jurisdiction has different resources available and faces unique circumstances, needs, and demands, the steps are designed to be flexible and adaptable. It may choose not to follow them in the sequence presented here. Most likely, it will be working on several simultaneously. Each step is important but, it should be addressed as company design and implement the system. Careful planning at the outset is invaluable. A detailed plan,

based on a solid understanding of community needs, will enable the implementation process to run smoothly, avoid costly mistakes and wasted effort, and ensure the program's success. More than a to do list, the plan should incorporate the program's goals, the tasks that will lead to accomplishing the goals, a timeline for implementation. Before adopting a step-by-step implementation approach, an overall concept must be established for all relevant business processes to avoid conflicts and constraints in subsequent implementations. For example, due to the complexity of its financial legacy system over several regions, a company might choose to implement certain logistics modules first (e.g., Materials Management, Sales and Distribution, Logistics Execution) and build interfaces between SAP and the legacy systems. A phased ERP implementation will establish several small go-live dates for each phase of the project, rather than a single date affecting the entire enterprise. For instance, it might go live in the accounting department on one day and go live with the inventory and warehousing operations on another. In this way, the implementation company will replace the older systems gradually, not all at once. It can set these milestones based on variables, such as: module, business unit, geographic location.

Advantages of step-by-step implementation:

- The complexity for coordinating, controlling, and organizing the project and resources is reduced;
- A minimal amount of human resource is required for the project team and user community;
- The quality of the projects improves because the project members increase their knowledge and skills;
- A team of internal consultants can be established over time, reducing the cost of the project;

- There is a smoother changeover throughout the company: people have time to adapt to changes;
- Costs are spread over a longer period;
- Modest organizational changes can be considered during the implementation.

Disadvantages of step-by-step implementation:

- There is a longer project throughput time;
- Interfaces must be developed to maintain existing systems;
- Integration advantages of the project can only be used step by step;
- Customizing may not be optimally set because integrating components have not yet been implemented;
- Return on investment is generally delayed.

This implementation strategy is considered very effective in transition from one system to another. Given that the transition from an ERP system to HANA has become relevant in recent years, it is appropriate to review the steps for the transition Migrating existing ERP system to SAP HANA involves a series of steps to ensure a smooth transition. The step-by-step guide is provided below for migrating the ERP system to HANA.

Step 1: Assessment and Planning:

- Evaluate Readiness: Assess current ERP system to determine its compatibility with SAP HANA. Check the hardware, software, and database requirements.
- Business Impact Analysis: Identify the potential benefits, risks, and impact of the migration on organization's operations, processes, and users.
- Migration Strategy: Develop a migration strategy that outlines the approach, timeline, resources, and key stakeholders involved in the migration process.

Step 2: Data Preparation and Cleanup:

- Data Assessment: Analyse existing data to ensure its quality, consistency, and relevancy. To optimize the new SAP HANA environment, perform data cleanup and transformation.
- Data Extraction: Extract the necessary data from ERP system to prepare for migration.

Step 3: SAP HANA Environment Setup: Evaluate existing IT infrastructure and hardware to ensure compatibility with SAP HANA's requirements. Depending on company needs, it may need to upgrade servers, memory, and storage to accommodate in-memory processing.

- Infrastructure Preparation: Set up the required hardware and infrastructure to support SAP HANA's in-memory processing capabilities.
- Install SAP HANA: Install the SAP HANA software on the designated servers following SAP's installation guidelines.

Step 4: Data Migration: Prepare existing data for migration by cleaning, transforming, and structuring it appropriately. Develop a plan for data migration from existing systems to SAP HANA. Ensure smooth integration with other data sources and systems.

- Data Load: Load the extracted and transformed data into the SAP HANA database. Company might use SAP Data Services, SAP Replication Server, or other data migration tools.
- Testing: Verify the integrity of migrated data by running tests and validations to ensure accurate and complete migration.

Step 5: Custom Code Adaptation:

- Adaptation of Custom Code: If existing ERP system has custom code, ensure it's adapted to work seamlessly with SAP HANA's architecture and capabilities.
- Performance Testing: Test the performance of custom code in the SAP HANA environment to identify any issues or bottlenecks.

Step 6: Functional Testing:

- Module Testing: Thoroughly test each module of the existing ERP system on the SAP HANA platform to ensure that all functionalities work as expected.
- User Acceptance Testing: Involve end-users in testing to ensure they are comfortable with the new environment and that the system meets their requirements.

Step 7: Data Migration Verification:

- Data Reconciliation: Verify that the migrated data in SAP HANA matches the data in the source ERP system.
- Data Consistency and Accuracy: Ensure that data calculations, transformations, and relationships are maintained accurately after migration.

Step 8: Training and Change Management: Thoroughly test the SAP HANA environment, including data integrity, performance, and compatibility. Identify and address any issues or bottlenecks before moving to production.

- User Training: Train end-users on working with the new SAP HANA-based ERP system.
- Change Management: Implement a change management plan to help employees transition smoothly to the new system.

Step 9: Go Live and Post-Migration Activities:

- Final Testing: Perform a comprehensive round of testing to ensure all modules and functionalities are working as expected in the SAP HANA environment.
- Data Backup: Implement a robust data backup strategy to safeguard against any potential data loss during the go-live phase.

Step 10: Monitoring and Optimization:

- Monitor Performance: Continuously monitor the performance of SAP HANA-based ERP system to identify any issues and ensure optimal operation.
- Optimization: Fine-tune and optimize the system based on real-world usage

Step 11: Deployment: Once testing is successful and team is trained, deploy HANA in a production system. Monitor its performance, security, and data integrity regularly.

Step 12: Continuous Improvement: Regularly assess the effectiveness of SAP HANA in meeting organization business goals. Identify areas for optimization, further integration, or enhancements. Keep up to date with SAP HANA updates and improvements.

2.6. Big Bang implementation

The Big Bang implementation approach in economic terms finds its basis in the theory of "discontinuous change" or "economic discontinuity." This theory posits that there are instances in the economic life cycle of an organization or sector where abrupt, comprehensive changes in technology, processes, or systems can yield substantial benefits. This economic discontinuity concept aligns with the principles of punctuated equilibrium from evolutionary biology, which suggest that significant evolutionary changes occur suddenly rather than gradually. The Big Bang approach can be seen as an attempt to maximize the economic gain associated with technological innovation and process optimization from a mathematical perspective. In economic modelling, it can be framed as a discrete event, characterized by a step-function or shock, leading to an immediate shift in productivity and operational efficiency. This shift can be modelled using equations that account for the sudden change in variables such as production output, labor productivity, and cost structures. The economic rationale behind Big Bang implementations is to capitalize on economies of scale and scope, realizing immediate cost reductions, productivity gains, and competitive advantages. It reflects the concept of "creative destruction" introduced by economist Joseph Schumpeter, where the rapid adoption of new technologies and systems disrupts established economic structures, leading to the creation of new, more efficient ones.

However, the economic science behind Big Bang implementation also acknowledges the associated risks and uncertainties. Economic models may incorporate stochastic elements to account for potential outcome variations,

reflecting the real-world complexities and challenges faced during large-scale, abrupt transformations.

Big Bang implementation aligns with economic innovation theories, technological disruption, and discontinuous change. It is viewed as a calculated risk that, when successful, can lead to significant economic advantages. Yet, its scientific underpinnings also emphasize the need for rigorous planning, risk management, and adaptability to navigate the potential pitfalls inherent in such transformations within the economic landscape. The term "Big Bang ERP implementation" describes a go-live scenario where a business switches from its existing ERP system to a new solution at a single point in time. This means all the company's modules and offices go live simultaneously. Big Bang implementations work best for organizations that only have one or two functional areas that will be using the business solutions such as ERP systems. Even in these cases, a crashing system would be disastrous, so I always recommend that businesses develop a contingency plan to recover their data if the worst comes to worst. In addition, robust ERP system testing and data validation techniques are a must-have with a big-bang implementation, it can help identify and resolve bugs or compatibility issues before go-live. Despite the risks, the Big Bang approach does have plenty of benefits.

Chiefly, companies that successfully manage a Big Bang implementation enjoy a quicker and lower-cost process than companies that spread the implementation over a more extended period. A big bang deployment of ERP replaces all or most critical existing systems in a single operation with the new software. Fastest by definition, the big bang emerged as the most cost-effective and riskiest solution. A majority of the SAP community would vote against the simultaneous launch

of ERP modules in conjunction with a new IT infrastructure. This approach is preferred by companies with a straightforward organizational structure or with too many systems to replace where the cost of developing interfaces would be too high.

Advantages of Big Bang implementation:

- Few or even no interfaces between legacy systems and the new application are needed because all modules go live at the same time;
- There is a short throughput time;
- The project members' motivation is high;
- It is highly efficient, because redundant customizing is avoided;
- There is optimal integration of all components under consideration of the integrated business processes.

Disadvantages of Big Bang implementation:

- The implementation is complex due to the increased need for coordination and integration;
- It is resource-intensive over a short period;
- All employees are subject to higher stress levels at the same time;
- A high degree of consulting support is required;
- Organizational changes must be limited to overcome resistance to change among employees.

2.7. Rollout implementation

Rollout implementation aligns with the economic concept of "marginal gains," popularized by Sir Dave Brailsford, which suggests that continuous small improvements in various aspects of a business or operation can collectively lead to substantial competitive advantages. This concept mirrors the mathematical idea of integration, where the cumulative effect of tiny changes results in significant transformations. The economic rationale behind Rollout implementation lies in its capacity to manage risk and uncertainty. It recognizes that abrupt, large-scale changes carry higher inherent risks and can disrupt operations, potentially leading to financial setbacks. Instead, it favors a gradual approach that allows organizations to adapt incrementally, mitigating the impact of disruptive events. Rollout implementation resonates with the economic theory of path dependency, which posits that past decisions and investments influence the future trajectory of an organization or industry. Gradual, step-by-step changes allow for the preservation and refinement of existing processes and resources, reducing the likelihood of sunk costs. However, the scientific underpinnings of Rollout implementation acknowledge the need for vigilance in monitoring and evaluating the effectiveness of incremental changes. Economic models may incorporate feedback mechanisms to assess Rollout refers to region or business specific extensions of implementation after a model is created at one site or business unit, which is then used to implement to the other sites or business units. Another words, a rollout in business may also refer to the implementation of a new system within a company. A company may refer to its rollout strategy for its

new enterprise resource planning (ERP) system, which could include the entire company or only select departments. The companies operating in USA and Europe might choose to create a model for most of its functionality in USA and with a subsequent phase implement the tested approach in Europe. Similarly, a company operating multiple business units might choose to start the implementation with the one of the business units and leverage its experience. SAP roll out means reuse of existing implementation cycle and business processes at the new location. It is required to do the same basic settings according to location of the implementation. In SAP rollout project, there is no need to do everything from scratch. The difference between rollout and implementation is that rollout is an act of rolling out; deployment while implementation is the process of moving an idea from concept to reality in business, engineering and other fields, implementation refer to the building process rather than the design process. So, during implementation functional consultant study the company business process and come out with blueprint is called as-is, after discussion with project manager and internal person will come out with as-is analysis. That is going to be implementation the company. Roll-out means copying the existing process implemented in SAP and making minor changes here and there according to the place and country where they will implement the SAP system. The rollout process can be schematically described as follows (Figure 4). The rollout approach can be combined with the other implementation strategies above limiting or enlarging its functional scope.

Advantages of rollout:

- There is valuable experience gained by project members;
- Expertise is available for a fast implementation;

- Costs are kept low because only limited resources are needed;
- Standard business processes can be achieved by using a model implementation and leveraging the same design;

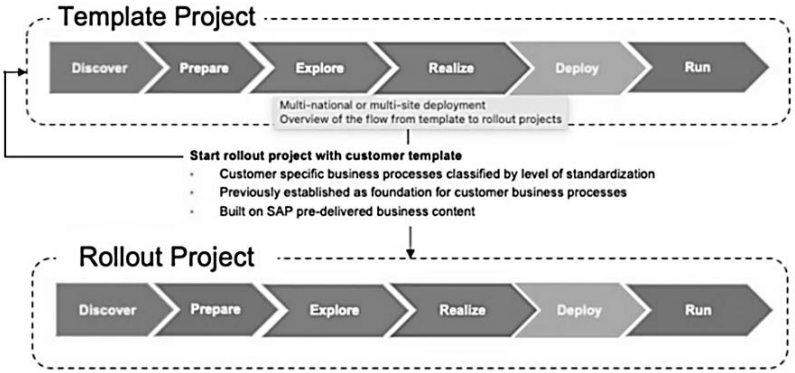
Disadvantages of rollout:

- Customization must also consider company standards for subsequent implementations;
- Site-specific requirements can be overlooked.

Which implementation strategy to select will be affected by the time and resource (people and money) constraints? The size and scope of the effort will also affect the decision of which implementation strategy to take. Finally, several major events may impact the selection of the proper strategy. Among these are the following:

- Mergers and divestitures;
- New legal requirements such as the recent data migration;
- Increasing software failures in the current system;
- A current re-engineering effort within the company;
- Austerity and cost-cutting programs within the company.

Figure 4. Overview of the flow of rollout projects



Source: How to use SAP Activate methodology in multi-country deployment projects by Jan Musil, 2021

2.8. Multi-model databases systems in corporate governance

A multi-model database is a management system that combines multiple database types with a single backend. Most database management systems support only a single database model. On the other hand, multi-model databases store, query, and index data from different models. A database management system is a software package for creating and managing databases. Many different types of database systems exist based on how they manage the database structure. There are many different multi-model database types available on the market. The one distinguishable feature is the support for multiple models in one backed engine. Some databases layer multiple models on the engine through components. From this point of view, existing multi-model database systems can be described in the matrix according to their components (Table 3).

Table 3. Multi-model database systems and their components

	DC	KV	GPH	STR	RL	TS	TB
Orient DB	1/4	1/4	1/4		1/4		
SAP HANA	1/4		1/4	1/4	1/4		
Couchbase	1/2	1/2					
Cosmos DB	1/3	1/3	1/3				
Arango DB	1/3	1/3	1/3				
Datastax		1/3	1/3				1/3
Redis	1/5	1/5	1/5	1/5		1/5	

Note: *DC- Document, KV-Key value, GPH-Graph, STR-Streaming, RL-Relational, TS-Time-series, TB-Tabular*

Different type of multi-model data management engine takes full advantage of the capabilities of its hardware to minimize data movements, thus increasing application speed and agility as it analyses real-time data. İn terms of corporate governance depending on the needs of industrial enterprise, SAP HANA can be deployed on premises, in the cloud, or as a hybrid system, blending the privacy and control of an on-premises system with the lower cost, greater memory, and increased access of the cloud. Its ability to process enormous amounts of data efficiently makes it easily scalable to suit a growing business without sacrificing security or stability. On the SAP HANA platform, developers can build their tools and applications that integrate business logic, control logic, and the database layer with unprecedented performance and can provide them with the following five significant benefits in the formation of corporate governance:

High performance - The speed of SAP cloud integration makes it a flexible option as the company can obtain absolute benefits with data. For example, the finance team can run several tasks without worrying about finishing one at a time. The tasks can run various teatimes to achieve improved outcomes. The S/4 HANA offers real-time data storage and processing. It provides high performance for time-driven and intricate businesses such as enhanced forecasting, various analytics of real-time data, data execution, reporting, planning, and instant culmination. A company can instantly recover many losses with real-time data analytics and reporting. High-end companies like PayPal, Dell, Walmart, Nestle use SAP HANA because they have a similar type of large data. This way, SAP HANA stores similar types of data in a single place, making data usage easy and effective. As per employees, businesses employing SAP HANA 36% are large

companies, 27% are small, and 37% are medium-sized companies.

Outstanding efficiency- it is entirely steered by SAP Fiori and supported by SAP HANA; thus, it leads to a user-friendly rendition of real-time data and business insight. This helps companies to outgrow their competitors and helps them to expand their businesses. The use of SAP Fiori is the primary key to improved productivity. The column-oriented storage makes the data usage efficient and brings a credible business advantage in every surge issue. SAP HANA's benefits facilitate several transactions using one application, and the deals are commenced with fewer clicks. Company can customize the screen fill-out to enhance the user experience. The experience is recouped as a single line item, improving data reliability across every function. SAP HANA is one such by-product that is steering cloud adoption by companies via cloud-based modelling.

Excellent data management – experience shows that the company can easily reduce operational monitoring costs by employing SAP HANA. This assists in averting data delays which can get the query to organization data reliability. SAP HANA helps businesses achieve their goals by offering different business tools. This way, an organization can directly broadcast from their ERP Databases. With SAP HANA, company can make informed and prompt decisions via improved visibility by SAP HANA live help organizations. The users can create necessary queries to extract any data. The online analytical programming system feature makes data storage and usage simpler. With improved analytics, a business can generate double ROI in a restricted time frame. The SAP Cloud Platform offers physically restricted businesses

to expand over geographical boundaries. Even as a small business, the company must implement SAP HANA to keep growing. So, if the company is considering adopting SAP HANA, do it as soon as possible. Most database systems are organized around a single data model that limits how that data can be organized, stored, and manipulated. SAP HANA's multi-model database supports multiple data models against a single integrated backend, making it easy to establish the relationships among data points. Data enhancement will help simplify how existing data looks and reads, making it easier to understand and run reports. SAP HANA's in-memory technology has ended cumbersome batch processing, instead keeping all data highly available with no latency – all processes take place in real time. Enterprises can dramatically simplify their management systems and change them to improve efficiencies.

Ownership management and advanced analytics - SAP HANA system is a cost-effective option. It enables the company to enlist all the transactional and analytical capabilities of various systems within a single system, which steers business making. If company is looking for an option that can yield higher ROI in the longer term, go for SAP HANA. The advantages of cross-functional transparency appear as a beneficiary of SAP HANA, making the workflow dependable and reliable. When a company's workflow becomes reliable, it directly increases productivity. Accessing data in diverse system areas and cross-functional work further helps derive real-time analytics and insights into the company's data. Real-time analytics makes it possible to tap into massive amounts of data, such as that coming from IT sensors and mobile. SAP HANA's machine learning engine extracts data from and writes to the server in real-time, instantly identifying

problems and engineering solutions in every aspect of an enterprise, from payroll to human resources to customer care to supplier management.

Simplification - Simplification is a benefit that can be more directly linked with SAP HANA. This is particularly important since it reduces issues with the settlement and promotes one source of truth in its place. Model-related dealings are saved as a single line item, improving the data's reliability across functions. SAP HANA brings vital simplicity to the management and administration of the complete IT landscape and attached to the cloud adoption potential that it brings to the front, hardware and network sources have never been so centralized. The SAP HANA system intends to simplify the user experience, manage their IT landscape, and curtail administrative efforts. SAP HANA's advanced analytical processing allows developers to build simple tools that business teams can easily use to produce custom reports – without help from IT or external consultants.

2.9. Key factors that lead to HANA implementation failure

ERP system implementation success is not a matter of chance. It's a matter of design. Adequately implemented ERP will increase productivity, resource utilization, inventory management, and customer experience. Apparently, migration to HANA system is an expensive investment of time and money. It should not be taken lightly. Many organizations do not give this undertaking the same diligence as other important projects. It's not just about migration to the HANA system. The mentioned can also apply to the implementation of the ERP system. The people in charge of evaluating business ERP should know the company's culture and at least a high-level understanding of what to do. Bringing in key department heads to help is also critical. I believe implementation failures are not due to the software solution. It is often due to the following project failures. These are several key points to consider before and during HANA system implementation in industrial enterprises:

Discrepancy between the scope of work in the project and the actual budget: Taking the time to complete a risk assessment, cash flow impact, benefit, and performance objectives are crucial steps often omitted when evaluating an ERP system as well as HANA migration. Another mistake is focusing on reducing the implementation costs. If industrial enterprises work with a partner wanting to close the deal, they will cut the budget to meet the client's demands. This leads to the assumption that the software will increase productivity and efficiency by requiring minimal configuration. The result is often disappointing and blamed on the software solution. The reason is that there is not

enough budget. At this point, no one is happy. Instead, focus on how using a consulting company can help improve productivity and streamline processes and how teams can reduce implementation costs in other ways, such as using the free eLearning that nearly every software vendor offers now. Some industrial enterprises have a management team that blames the consulting team and finds a different partner to give them the same answers. Of course, sometimes there are just better consulting partners. This is often called a "rescue". However, it is never a good idea to pay twice. If the industrial enterprise does not want to face such a situation, I recommend that be realistic with the budget and communicate this clearly with the partners.

Inadequate resources: Many business leaders fail in their responsibility to provide the resources, staff, and time necessary to make a HANA implementation successful. Resource requirements must be identified in advance and appropriately allocated. Management must also be able to account for the loss of productivity caused by staff members being taken from their jobs to receive training and address important project issues. These will include all aspects of business. To keep critical processes running smoothly and to avoid bottlenecks, temporary resources can be accessed.

Also, it is important to ask about the project's duration and the skills required to implement the system successfully. This will help to determine what resources the consulting company will supply and which resources industrial enterprises will need to source internally or externally.

Unexperienced team: A novice should not lead a complex, in-depth implementation project. An ERP and as well as HANA solution's life expectancy is approximately 10 years. This project can have a significant impact on the

performance and efficiency of industrial enterprises. The enterprises want to select the best talent available for the project team. Having some core team members who have been through an HANA implementation is a good idea. Project manager can be sure that the outside consultant guiding the company in implementation has successfully implemented HANA solutions for similar companies. The Project Manager must have the domain knowledge to manage the project details while keeping the business goals in mind. A positive outcome is possible when project managers are involved in the selection and implementation process. The project manager should be in touch with end users. The project's success should be in his interest with executive leadership support.

Unnecessary customizations and data conversion: Data conversion, interfaces and customizations are the three most difficult phases of an HANA implementation. These are the costliest and cause for delays. Do enterprises really need 5 to 10 years of transactional history? Ask the accounting team how and when they would use this data. Is it worth the 10K to 75K costs? If they says yes, we can convert the enterprise's data, then ask them how much? It is hard to estimate data conversion. We have been attempting to do this for 25 years to no avail. Converting this much data is risky, expensive, and takes time.

Industrial enterprises that to buy ERP system are often not discouraged from asking for small changes and additional features in the implementation phase, even though the cost of customizations can be inexpensive or expensive, they may save company a ton of labor time in the long run. The rule of thumb is if they can go-live without the change, then wait and see if need it, then do it after go-live. Every feature request

must be justified and offer quantifiable benefits to the enterprises.

Bad executive leadership: Executive support and leadership is key to a project's success. Because it is a huge under-taking, it requires strong executive leadership to succeed. There are many projects falter due to poor executive leadership. Core team must have direction, support and understanding during an ERP implementation or HANA migration. Don't just hand this off, join project calls, ask questions, make sure the people in the trenches are not burning out and making wrong decisions for the business.

Poor implementation strategy: A methodical approach with a well-planned strategy is essential to see success. It should be aligned with the industrial enterprise's objectives and culture for the project, which were set in the initial planning phase. The project will not move forward if it isn't clear what problems new system will solve and what outcomes company wants to achieve. For example, industrial enterprises need to pay attention to core business processes, measurable financial benefits and establish reasonable deadlines for project milestones. However, if the consulting company requests to change go-live, ask for specific reasons. This isn't a finger-pointing exercise since in most cases it's everyone's fault things are delayed. Typically consulting company won't ask to delay a go-live unless they feel the project may fail at go-live. The best thing to do is listen and change plans. Industrial enterprises must be agile during an HANA project because the best-laid plans will invariably have a hick-up. Its not a matter of if, its when.

Failure to comprehensively test the system with timely accuracy: One of the biggest problems HANA migration have besides lack of executive leadership, is core team of industrial

enterprises that do not test the system comprehensively. Testing new HANA system is imperative to go-live success. Project Managers should make a schedule of testing and make sure that everyone has done their job in the new system at least once, two to three times or more is ideal.

One of the main areas to test is reporting to manager. Managers should make every effort to sit in on their staff testing. This time can be used to evaluate end-user training efforts and how the system will work for each staff member. Some of the best projects use this time for end users training.

Post go-live expectations: Depending on implementation, company may have several outstanding items at go-live. This is normal. Ensure project quote has enough budget for post-go-live support. Review this with project team mid-way through implementation and before go-live. Discuss changes with consulting company so they can schedule accordingly. Keep in mind that ERP consulting companies schedule other projects and may not have planned for additional resources for an extended go-live. User adoption is super important at this point.

One notable example of a failed ERP project is the case of Hershey's ERP implementation in 1999. The Hershey Company, a well-known American chocolate manufacturer, attempted to upgrade its legacy systems by implementing a new SAP ERP system. However, the project faced significant challenges, ultimately disrupting the company's operations and financial performance. In 1996, Hershey's embarked on a project to replace its aging legacy systems with a modern SAP ERP system. The company aimed to streamline operations, enhance supply chain management, and improve overall efficiency. The ERP implementation at Hershey's encountered several critical issues: The implementation was rushed to

meet the demands of the Halloween and holiday seasons, which are crucial for chocolate sales. The project lacked proper testing and simulation of various scenarios, leading to unexpected issues during the go-live phase. Hershey's supply chain is complex, involving multiple distribution centres, suppliers, and production facilities. The ERP system struggled to handle this complexity effectively. The ERP system's rollout caused disruptions in the company's production and supply chain processes. Orders were delayed and distribution centres faced difficulties in fulfilling orders. Due to the issues with the ERP implementation, Hershey's experienced a significant drop in sales and earnings during the crucial holiday season, which affected the company's financial performance.

Consequences:

The failed ERP implementation had severe consequences for Hershey's:

Lost Revenue: The supply chain disruptions and delayed orders led to a loss of sales during the key holiday season, affecting the company's revenue.

Stock Price Decline: Hershey's stock price dropped significantly due to the implementation issues and the negative financial impact.

Recovery Efforts: The Company had to invest time and resources in resolving the issues and stabilizing its operations.

Lessons Learned:

The Hershey's ERP implementation failure highlighted the importance of careful planning, thorough testing, and gradual rollout for complex ERP projects. Rushing the implementation and underestimating the challenges of integrating such a system can harm operations and financial performance. In our opinion, this case serves as a cautionary tale for organizations undertaking ERP implementations,

emphasizing the need for proper project management, realistic timelines, and comprehensive testing to mitigate the risks of failure.

Accordingly, ERP systems are defined by many as an integrated software package that enables a company to control all its functions and business processes with a facilitated flow of information. However, Information Technology in general has suffered a big market growth and took with it both corporate globalization and competitiveness. In fact, due to today's continuous growth of the business environment and the quality of ERP systems, their use by organizations has been increasing in recent years. With the demand of the market, ERPs have been evolving into a more sophisticated system. Due to this increase in ERPs implementation benefits, organizations have been adopting them increasingly to the point where the global ERP software market was valued at 32 billion dollars in 2017 [27]. In the ERP industry, there are 4 major products, SAP, Oracle, Microsoft Dynamics 365, and Sage with SAP leading the way in size, quality, innovation, and market share. Despite the increasing use of ERP systems and their benefits, the percentage of failed ERP implementation has been a concern for several researchers. In 2015, in the Panorama Consulting Group's annual ERP report [28], was found that approximately 41% of the organizations in that survey got 50% or less of the benefits expected in the beginning of the ERP implementation. Due to this, several researchers developed studies mainly through case studies using interviews and surveys that identified as key factors for ERP systems implementation failure the consultants in terms of having improper training, poor communication skills due to language differences, and lack of understanding of business processes and management practices. In parallel, the biggest topic around ERP services

regards the key success factors for its implementation. Chou and Hong defend that the increase in the complexity of the business environment has made it necessary for ERP systems to " handle today's dynamic company environment" [30].

Consequentially, I can say with certainty that SAP is the most common ERP system all over the world as well as in Azerbaijan. In today's time as organizations are growing larger and bigger, the processes and business functions are also multiplying rapidly. To streamline all this complex workflow structure, companies are now drifting towards ERP implementation to simplify things. Therefore, the challenge of implementing company-wide ERP systems or HANA platform, covering all the functions of a company, and integrating processes in a customer-oriented way is to improve the project management approaches by introducing new tools, internet technologies, groupware and custom methodology databases. Resources and systems are utilized more efficiently, leading to higher overall productivity. Signing the contract is the next step after the difficult decision of implementing a specific ERP software.

Contracting includes product definition, project definition, deliverables and materials, purchased services, responsibilities, payment type, payment plan, laws, validity, and other similar items depending on the project and scope. The implementation starts with the project preparations after signing the license and service agreement. The project and business goals are determined, and expectations from the project are defined. Overlaying these issues that affect the decision is another set of issues that affect the implementation, whichever implementation strategy is mentioned in the above paragraphs is selected. To some degree, this issues will steer the selection toward one approach over another, but they will have an impact no

matter which implementation strategy is selected. Only with the big-bang approach will the company start utilizing the information captured by the SAP system like any resource, such as manpower, materials, and money, rather than merely as a recording and reporting system.

In the reality of Azerbaijan, where great achievements in automation and management are set as the highest goal, traditional systems were hobbled into playing exactly such a role. They could never deliver the productivity gains expected of them. From this point of view of global integration and new trends, as the volume of information increased, the system's stability begin to come to the fore, which conditions the application of cloud solutions. The company must also decide the implementation phases following the pilot site implementation. The true benefits of an integrated system can be reaped only when all sites and offices of the company are brought on board the SAP platform. Towards this objective, the pilot site team must be staffed by personnel from all future sites of implementations, and the functionality, as implemented at the pilot site, should be as comprehensive as possible, based on the available time frame and business know-how with the team members.

PATH 3. TRANSFORMING PROCUREMENT PROCESS

This chapter has classified the advantages of e-procurement, studied the existing problems in the system of e-procurement in sizeable automotive industry enterprises, identified existing obstacles practically, explored the possibility of creating an integrated e-procurement system in industrial enterprises in Azerbaijan, prepared main business processes covered by the e-procurement system and the priority directions of its organization in tabular form. The use of the Ariba platform in industrial enterprises in Azerbaijan and the possibility of integration with ERP systems have been explored.

3.1. Introduction to e-procurement and its significance in modern business environments

One of the strategic goals is to ensure the sustainable development of the national economy in modern times, to accelerate the development of value-added sectors of the economy, to improve the procurement process at the enterprise to develop competitive and export-oriented production areas. Especially, e-procurement is currently one of the hottest topics in the Internet arena.

However, many organizations fearful about the expense and risk, need advice and guidance about proceeding with this new technology. The internet facilities have greatly affected the activities of companies. They publish corporate

web pages, carry out their advertising activities in the virtual environment on the Internet, and create e-catalogues. Recently, the issue of organizing e-procurement in our country has become especially relevant also. So, for efficient planning and implementation of the public procurement and creating opportunities to use competitive procurement methods, the Law of Republic of Azerbaijan "On Public Procurement" was changed. Thus, through the single web portal all members of the society will have access to the information on the government's procurement plans, participation in tenders, and the conclusion of contracts. A single electronic portal of Public Procurement technically developed by the E-gov Development Centre subordinate to the State Agency for Public Service and Social Innovations under the President of the Republic of Azerbaijan is one of the critical projects in the direction of increasing transparency in procurements carried out by state organizations. Taking into account the recent social isolation measures and special quarantine regime in the country in connection with the current situation, work is considered a priority in the direction of minimizing physical contact during the procurement process and ensuring the efficiency of the single internet portal of public procurement. Thus, work on integrating the "e-Procurement" portal into the "ASAN payment" system has been accelerated and the process has been successfully completed. From this point of view, it is worthwhile to study the priority areas of e-procurement in industrial enterprises of Azerbaijan. Large industrial enterprises and retailers intend to integrate into such a system. This issue is of great interest. Even though the portal was launched in April 2020 till today 2,792 e-tenders, 6,370 requests for quotation, 386 requests for proposals, 1,594 open tenders have been announced and 7,384 contracts have been signed. Currently, the portal has

5,123 users submitted by 1338 organizations and 3649 users submitted by 3306 contractors. Only in the current year, 1,012 procurement plans have been placed in the system by institutions [32]. The creation of such a portal for public procurement is commendable. Let's look at the issue at the macroeconomic level, in the near future. Expanding e-procurement of existing industrial enterprises in our country can give a faster impetus to entrepreneurship development, create additional incentive for business development, provide various raw materials in a shorter time, and create added value.

Not only in our country also in the developed countries to investigate the issue of creating e-procurement system and integrating its with other software are actual topic at the microeconomic level. Application of the purchasing system aims to create transparent, equal, fair and competitive economic opportunities. It is required fundamental research in the procurement process to ensure that large industrial enterprises in Azerbaijan are continuously and adequately supplied with raw materials and supplies

Overall approach E-procurement can be defined as a platform that enables all purchasing processes to be carried out and reported online, from opening the purchase request to delivering the demanded goods and invoicing. The Author of the “E-procurement: From Strategy to Implementation” book Dale Neef begins with an up-to-the-minute overview of the promise of e-procurement in supporting globalized, extended enterprises. He reviews options for deploying e-procurement, including sell-side one-to-many systems, independent portals, online trading communities, vertical and horizontal e-markets, auctions, reverse auctions and more [31,p.100]. Automation with e-procurement streamlines the processes to make them more efficient,

costing the company less money. Beyond this, it also removes low-value tasks from the procurement department so they can focus on high-value tasks like negotiating better contract terms. Most e-procurement focus on E-ordering, web-based ERP, e-sourcing, e-tendering. With this kind of e-procurement system company gains cost reduction, time-saving, transparency increasing, avoid extra contract spending, suppliers increasing and evaluation. E-procurement system can systematically increase the competition between suppliers and reduce costs to a minimum without sacrificing product and service quality. In this way, company can get rid of the high-pressure costs. Other side purchasing operations with traditional methods are often a burdensome and corrosive process. It may take weeks or months to achieve the ideal result, or potential savings may be lost due to time constraints. An electron system which improves workflow in the internal procurement process all suppliers know that they compete on a fair and equal platform. Companies can evaluate by many criteria, giving them valuable feedback on selection criteria as company relations with suppliers improve. Not only price also delivery time, quality, guarantee conditions, etc. of suppliers. Purchasing departments make central bargains with suppliers for the right and suitable products. Employees can order directly from their computer, long-term bargaining and research are eliminated and non-contractual expenses are prevented. Summarizing the above, I can classify the main advantages of e-procurement as follows:

Transparency: It is up to share all offers in detail and show supplier ranking information. Accordingly, all suppliers know they compete on a fair and equal platform. It provides a quick conclusion in purchasing.

Savings: Tender publishing costs, time, etc. for the purchase request. The company will not bear all the expenses.

Productivity: Companies can create and evaluate any number of tenders for the purchase request.

Tender Viewing: Company can analyse the position of product and service in the market by viewing the published purchase auctions.

Participation in the Tender: It can easily participate in published procurement tenders. Companies do not have to bear any additional costs for this. Companies have the opportunity for quick evaluation.

It provides robust reporting and measurement: The company can see all the data about the tender instantly and perform analysis by reporting.

Accessibility: It allows end-users to access business continuously from anywhere in the world with a computer or tablet device or access and application feature from a mobile phone.

3.2. Organisation of the e-procurement in industrial enterprises

E-procurement began in the early 1980s with the development of electronic data interchange. This allowed customers and suppliers, most often in the fast-moving consumer goods business, to send and receive orders and invoices via secure store and call forward networks. These simple e-procurement systems allowed businesses to exchange and synchronize master data files on products, prices, specifications and information about each other's locations and trading practices. In the 1990's internet software started to become available, and software companies began to develop buyer managed electronic catalogues for use by vendors. Sometimes these proved too unwieldy due to failures in communication between customers and suppliers, software companies started to customize, maintain and host some catalogues, effectively becoming "the intermediaries between the buyer hub and the vendor spokes" [31] and vice-versa. As the catalogues became outsourced, software companies started to offer the same catalogues to several buyers. Another development in e-procurement that arose at a similar time was the proliferation of e-marketplaces which covered some of the electronic trading needs of certain industries, such as automotive and aircraft. These act as a virtual marketplace for suppliers, distributors, agents and customers. The process of determining requirements must be performed directly and automatically, and these requirements have to be integrated with the e-procurement unit. For building thorough benefits offered by E-Procurement solutions, as well as providing to

the goals for cost savings and continuous improvement, the process of determining requirements must be performed automatically. These requirements must be integrated directly with the e-procurement system.

The research shows that, in some countries, industries and suppliers may not always feel comfortable using online tools to handle a response to purchase orders they receive. When this is the case, it's important to have tools available on the chosen e-procurement system for documenting physical paper order responses, invoices, and expense records. To make the most use of an e-procurement system, it's also wise to update existing supplier lists to include tech-savvy companies willing to engage in transactions with business through modern e-procurement tools. But E-procurement isn't a one-size-fits approach due to the main barriers presented in this paper. The identification of the main direction of implementing e-procurement is fundamental for managers for them to able to facilitate the implementation process. From this perspective, many companies may find adopting and implementing e-procurement difficult. Managers need to know and understand all the directions and barriers that may interfere in the process of e-procurement implementation. Knowing these managers can take action and overcome them. At this point, the experience of other companies and best practices can help us. In this regard, it is expedient to consider the obstacles faced by large automobile production companies Volvo, Ford, Volkswagen during using modern e-procurement tools (Tabel 4).

Table 4. Vehicle manufacturer e-procurement benefits and barriers

	Ford	*Volvo*	*Volkswagen*
Expected	-Price reduction -Minimize paper transactions -Electronic audits	-Improve quality -Decrease fixed assets -Increase flexibility or efficiency -Lower total cost	-Improve business process -Supplier development
Realized	-Lower material costs -Transaction efficiency -Control maverick spending	-Improve quality -Decrease fixed assets -Increase flexibility or efficiency	-Reduced order lead time -Reduced unproductive waste
Industry Barriers			
Environmental	-Reluctance by suppliers to subscribe: reverse auctions -Anti-trust legislation	-“2" tier supplier conf list over increased stock levels	-Private hub: may suffer from individual system standards in the future
Firm Barriers			
Structural	-New systems must align with the needs of the central purchasing commission	-Union disputes over labour agreements from outsourcing -E-procurement initiative introduced by Ford: concern over limited choice of catalogues	-Centrally based purchasing system

Cultural	-Resistance by departments who already have established purchasing relationships	-No strong evidence	-No strong evidence
Managerial	-No strong evidence	-Difficultly in justifying system due to lack of a business case	-No strong evidence
User	-Staged implementation means it is difficult to identify the system as a definitive product -Operators used to bespoke system design: difficulties in adapting to standard package	-No strong evidence	-Proliferation of individual systems and standards requires considerable knowledge by users UN standards for currency, -EDI standards used for logistics, but not purchasing
Technical	-15 - 20 year old, mainframe Systems	-Lack of integration between supplier systems during installation	-Initial problems in Internet technology caused by high system use

Source: Wang, John, Information Technologies, Methods and Techniques of Supply Chain Management [33, page86]

In this table, the barriers are grouped into industrial and functional types. In my opinion, this kind of classification for barriers is not informative. According to the adoption of this innovation and the problems that arise in implementing the

e-procurement system, it is necessary to distinguish four important directions in barriers: management, organizational, information technology and end-users' barriers. I can generalize the barriers in each direction and group them as follows:

- Management barriers: limited resources, resistance to change, problems in sharing, information and collaboration;
- Organizational barriers: different cultures, internal and external compatibility, breaking up post supplier relationships;
-IT barriers: security of transactions, lack of compatibility and integration between systems, lack of common technology standard;
- End-users barriers: user resistance to change, lack of information system skills and fear.

IT barriers play a very important role in the implementation process. The most important IT barriers are the security of transactions, lack of compatibility between systems and the lack of common technology standards. The Lack of common technology standards and security of transactions are stalling the progress of implementing E-procurement. I think that e-procurement is a more IT-oriented product. IT barriers play a very important role in the implementation process. Lack of common technology standards and security of the transactions are stalling the process accomplishment in E-procurement. Considering all the obstacles mentioned above and efficiency indicators of e-procurement, it is necessary to identify the business processes and transactions it covers to determine the directions of e-procurement for enterprises operating in our country. These directions have been developed by us and presented on the following table (Table 5).

Table 5. Sequence of purchasing business processes coverage for e-Procurement in industrial enterprises of Azerbaijan

Business processes	Transaction
Supplier Management	• Supplier Onboarding & Registration • Company Accreditation, Qualification & Approval • Supplier Performance Management
Sourcing	• Category Segmentation • Supply Market Analyses • Develop Sourcing Strategy • Execute Sourcing Strategy • RFI (Request for Information) • RFP (Request for proposal) • RFQ (Request for quote) • ITT (Invitation To Tender) • e-Auction • Multiple LOTs within 1 Event function • Negotiation • Contract Award
Contract Management	Contract Authoring • Contract Negotiation • Contract Execution • Contract Release • Contract Distribution • Contract Storing • Contract List Management
Purchase to Order	Purchase Requisition • Catalogue/Market Place • Contract Compliance • Purchase Order • Goods Received Note

Invoice to Pay	• Invoice Submission • Invoice Matching • Invoice Exception Handling • Invoice Approval Workflow • Payment • Term Optimization • Invoice Payment • Payment Status • Invoice Submission • Invoice Matching • Invoice Exception Handling • Invoice Approval Workflow • Ok to Pay Payment • Term Optimization • Invoice Payment • Payment Status
Spend Analyses	• Spend Reporting • Spend Classification • Spend Analyses • Spend Benchmarking Spend Forecasting
Due Diligence	• Due Diligence Check •Anti Bribery and Corruption Awareness • Anti Bribery and Corruption Certification
Sourcing Payment Application	• Local Application Instance • Asan Pay /Golden Pay
Mobile E-Procurement	• Mid-screen devices (smartphones, tablets)
ASAN Signature	• Delegation of Authority Limits • Approval as per DOA

Tender Committee Configurator	• Names/Division/ Function/Responsibility
e-Tender evaluation	• Evaluation Criteria Template Builder • %-weighted Technical vs Commercial “Envelopes” Function • Technical Envelope Evaluation Team assignment • Commercial Envelope Evaluation Team assignment • Evaluation Result approval workflow • Manual change of “winner” possibility due to internal decision • Notification Service (Winner notification, all bidders’ notifications etc.) Supplier Rating • Event’s Report and Protocol

Table provides a comprehensive overview of the key processes involved in e-Procurement for industrial enterprises in Azerbaijan. It serves as a reference guide, highlighting the sequence of activities and transactions required for effective procurement management. Understanding and following these processes is essential for organizations to streamline procurement operations, improve efficiency, enhance supplier relationships, ensure compliance, and ultimately achieve cost savings and better decision-making in the procurement process. Looking at the table we see that it shows the sequence of end to end business processes and transactions. It covers all steps of e-procurement and e-tender. It outlines various crucial processes in e-Procurement for industrial enterprises in Azerbaijan, covering supplier management, sourcing,

contract management, purchasing, invoicing, spend analysis, due diligence, payment methods, mobile procurement, signature approval, and tender evaluation. The implementation of Payments, which is an integral part of the procurement process, should be integrated into existing payment servers in the country and “ASAN Signature” should be fully covered for contract approval. Online bidding systems and electron procurement systems must be able to authenticate the bidder's identity, document that bidder has verified their submittal, accepted the terms and conditions of the bid requirements, and prevent undetected alteration of the submitted bid information. Compiling such a table allows to see the integration points for each transaction and “ASAN Signature”. It is a service submitted by the Ministry of Taxes and Mobile operator. It provides authentication of an electronic service user, electronic signing of the document and identification of the signing person. But as we have reviewed and responded to e-Procurement system, it is clear that many prospective buyers are confused about what constitutes an acceptable electronic signature. The confusion stems from misunderstanding the terms electronic signature and digital signature. While all digital signature technologies are electronic signatures, not all electronic signatures are digital signatures. A digital signature uses cryptographic methods to encode and decode transmitted data. “ASAN Signature” is the most common type of digital signature. Integrating it into the e-procurement process should be a priority.

3.3. Integration of E-procurement to ERP system

Over past few decades, e-procurement had been widely believed to be an avenue for integrating communities and countries into a global market economy. Governments around the world had set very ambitious goals and are running programmes with considerable financial volume for the implementation of electronic service delivery [34]. There is high demand for fundamental research in the procurement process to ensure that large industrial enterprises in Azerbaijan are continuously and adequately supplied with raw materials and supplies Along with the methodological side of the issue, software and its integration is of particular interest. In explaining the essence of e-procurement in the second section, Dale Neef's ideas were of particular interest. He highlighted the integration of e-procurement application with other systems in the enterprise. An economist whose views I agree with, Dale Neef thinks following coverage includes [31, p.164].

- Making the business case for e-procurement: process efficiencies, compliance, leverage, and beyond;
- Designing the optimal e-procurement solution;
- Identifying the most appropriate role for integrators and consultants;
- Leading approaches, from ERP-centred solutions to enterprise application integration;
- E-procurement opportunities in the public sector;
- Key pitfalls, areas of risk-and proven solutions.

Problems with integration to backend systems, which may have incompatible platforms are an obstacle to many E-

Procurement efforts. Some companies use multiple program or ERPs which may not be compatible. Suppliers need to be able to handle different E-Procurement systems customers are using. For instance, Ariba, i2, and Commerce One have specific formats. To minimize some of these hassles, companies that have successfully implemented process-to-process solutions have found that cloud solutions often allow companies to drastically reduce the time and effort associated with on-premises installations. Because these on-demand solutions are hosted and are maintained as a service, the costs associated with software upgrades down the road are drastically reduced, if not eliminated. However, because not all e-procurement solutions address the ERP integration demands, it is important to consider solutions with standardized integration adapters for efficient integration projects. In addition, business process integration solutions can lighten the manual effort demands of keeping supplier-related item master and catalogue information current. This is possible through a supplier driven and centralized catalogue approach—managing indirect spend catalogues outside of ERP, Plant Maintenance (PM), Materials Management (MM) modules and then integrating with these systems to allow for real-time synchronization.

The outcome of the investigation I can list several E-procurement systems available in the market. Please note that the landscape may have changed since then. Some well-known E-procurement systems include:

SAP Ariba: A widely used solution for procurement and supply chain management, offering various modules to streamline procurement processes.

Coupa: Known for its cloud-based spend management platform that covers procurement, invoicing, expenses, and more.

Oracle Procurement Cloud: Part of the Oracle Cloud suite, it provides procurement and supply chain management capabilities.

JAGGAER: Offers a comprehensive suite of procurement solutions including spend analysis, sourcing, contract management, supplier collaboration, and more.

Ivalua: Known for its Source-to-Pay platform that covers procurement, sourcing, supplier management, spend analysis, and contract management.

GEP Smart: Provides procurement software encompassing sourcing, contract management, savings tracking, and supplier collaboration.

Basware: Offers solutions for procurement, invoicing, and networked trade to improve financial and procurement processes.

Procurify: A user-friendly platform focused on procurement automation, spend tracking, and approvals.

Zycus: Provides end-to-end procurement solutions including spend analysis, e-sourcing, contract management, and supplier management.

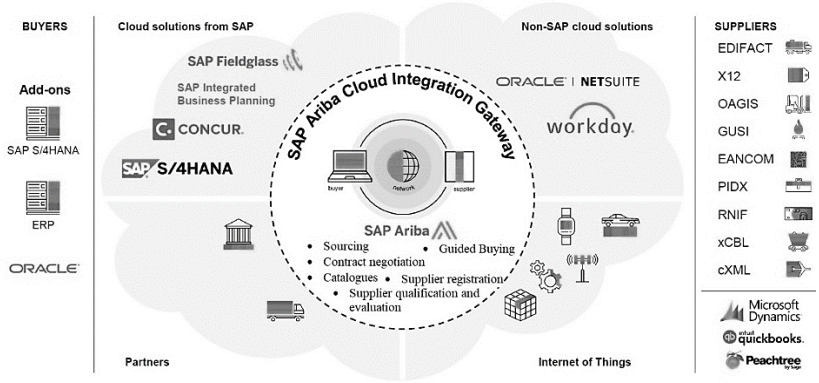
Tradeshift: Offers a collaborative platform for procurement, supplier management, invoicing, and payments.

BravoSolution: Known for its procurement platform that includes strategic sourcing, supplier collaboration, and procurement analytics.

These are just a few examples, and there are many more E-procurement systems available with varying features and functionalities. It's important to evaluate each system based on organization's specific requirements, such as the size of business, industry, procurement processes, integration capabilities, and budget.

SAP Ariba – the leading cloud-based solution for digitized purchasing functions, all suppliers were connected to one purchasing system, suppliers came to come to participate in a tender, the contract is won, all communication could take place electronically with the same data, purchasing solution had built-in performance metrics for the suppliers [35]. This is the reality with a digitized purchasing function and automation of Ariba. SAP Ariba is the leading cloud-based solution that helps company with the entire purchasing process (Picture 5).

Picture 5. SAP ARIBA integration strategy



From procurement and supplier management to contract management, catalogue orders, and invoice. The Ariba platform is integrated with other SAP ERP solutions: SD - Sales, MM-Material Management, FI-Finance, and SRM Supplier Management.

SAP Ariba is one of the e-procurement areas where the Azerbaijan Industry company can invest much effort and expertise. Ariba's unified portal allows the management of the entire process of planning, purchasing and paying for

goods and services in one place, providing main functionality. Documents are stored in the cloud system, they are accessed simultaneously. Suppliers registered in the system have their own personal cards and maintain them independently. The search for new suppliers is carried out on the Ariba information system in various geographic locations. Using the Ariba platform, companies can conduct a tender. The search for suppliers is carried out according to certain indicators (types of materials, ratings of suppliers, information on the delivery of materials by specific suppliers). All contacts with suppliers are carried out by sending requests and receiving responses through this system. All steps of the procurement process are recorded in this system. the procurement participant receives notifications of receipt of a request or response. The Ariba platform can also track late deliveries and blacklist suppliers if needed and also coordination of all contracts is carried out using the system electronically. In Ariba, companies can customize and store templates for purchasing document forms.

3.4. Future trends of E-Procurement system

The procurement world is undergoing a transformative evolution, driven by advancements in technology. E-procurement, a digital approach to managing procurement processes, has gained traction in recent years. However, the real game-changer lies in the integration of e-procurement with emerging technologies such as Artificial Intelligence (AI) and Blockchain. This integration promises to revolutionize procurement, enhancing efficiency, transparency, and overall effectiveness.

So, e-procurement involves using electronic systems to streamline and automate various procurement processes, from requisition to payment. It optimizes supplier relationships, reduces manual errors, and accelerates cycle times. As organizations embrace digital transformation, e-procurement is the foundation for further innovations. These innovations brings a new dimension to e-procurement. AI algorithms can analyse vast amounts of procurement data to identify patterns, predict demand, and optimize purchasing decisions. Chatbots and virtual assistants powered by AI can handle routine inquiries, improving user experience and freeing up human resources for more strategic tasks.

Furthermore, blockchain technology is renowned for establishing trust and transparency in transactions. In procurement, blockchain can enhance supply chain visibility by securely recording every step of the procurement journey. Smart contracts embedded in the blockchain can automate processes, ensuring compliance and reducing the risk of disputes. Also, emerging technologies enable better supplier management. AI can evaluate supplier performance based on

historical data, while blockchain can securely store information about suppliers' certifications, track records, and ethical practices. This enhances the evaluation process and fosters better relationships. AI's predictive analytics can help identify cost-saving opportunities by analysing market trends and suggesting optimal procurement strategies. Blockchain's tamper-proof ledger can mitigate risks associated with counterfeit products or fraudulent suppliers, ensuring authenticity and compliance. The integration of these technologies allows for real-time monitoring of procurement processes. AI can provide alerts about potential disruptions or deviations from expected outcomes. Blockchain ensures that every action is recorded and auditable, offering valuable insights into process bottlenecks and areas for improvement. While the potential benefits of integrating AI, blockchain, and e-procurement are immense, challenges exist. These include the initial investment in technology, data privacy concerns, and the need for employee upskilling. Ensuring interoperability and data security across these technologies is crucial. As AI, blockchain, and other emerging technologies continue to evolve, their impact on e-procurement will become even more profound. I expect increased automation, smarter decision-making, and greater resilience against supply chain disruptions.

In conclusion, the integration of e-procurement with AI, blockchain, and emerging technologies represents a pivotal moment in procurement evolution. Organizations that embrace this integration stand to gain a competitive advantage, enhanced efficiency, and improved risk management. However, successful implementation requires careful planning, collaboration, and a commitment to adapt to the rapidly changing technological landscape. The future of procurement is not only digital but also intelligent and secure,

thanks to the synergy between these cutting-edge technologies.

Considering the existence of different ERP systems in large industrial enterprises operating in Azerbaijan, using a single e-procurement system can not be considered effective without an approach to the ERP system, integration. Realizing the same work twice on different systems can be time-consuming and inefficient for users. From this point of view, to achieve sustainable development based on new technologies and modern management, it is inevitable to integrate the unified procurement system into the intra-enterprise ERP system. In this regard, the sequence of processes for the SAP Ariba solution, which has a Web platform covering purchasing and paying processes, does not go beyond the classic procurement process, but also can integrate with all ERP modules on a modern HANA system.

HANA is a powerful technology that has transformed how businesses manage and analyse data. Its in-memory capabilities enable real-time processing and analytics, helping organizations make faster and more informed decisions. It's widely used across various industries for various applications, from analytics to application development. It is also available in the cloud database. The use of such a system is recommended.

Modelling the development of large-scale industry is one of the main tasks set during the implementation of strategic road maps in Azerbaijan. Taking into account provision of the effective use of the production potential of this sector, the provision of business processes and directions classified (Table 5) in the application of e-procurement in modern conditions of further economic integration can be assessed as an economic system with a significant impact on the industrial enterprise.

Research shows that another important issue in the transition to e-procurement in the enterprise is the resistance to change due to the application of the innovation, the lack of system skills and fear of users. This can lead to unsuccessful results in projects. In this regard, it is advisable to consider above classified management, organizational, information technology and end users' barriers.

PATH 4. FORMATION CONTROLLING SYSTEM

This chapter highlights the essential role of the controlling system in effective business management. It enables continuous measurement, evaluation, and optimization of operations, leading to improved business performance and long-term growth. The chapter covers theoretical knowledge on controlling, diverse approaches by scholars, precise definitions, and the pros and cons of independent controlling services. It explores integrating the controlling system into management activities, its role in self-controlling for planning and performance analysis in small-sized enterprises and outlines key aspects of self-controlling. The formatting of controlling systems in Azerbaijani industrial enterprises is discussed, as are organizational stages of controlling. Corporate governance and business data management in these enterprises are addressed, emphasizing data coordination through corporate strategy, focusing on appointing dedicated roles for effective governance.

4.1. Concept of the controlling system

Delving into the diverse perspectives offered by economic literature concerning the concept of controlling, we embark on a journey to capture its essence from both economic and managerial vantages. Navigating the intricate realm of management accounting through a pragmatic lens, visionaries P. Horvath and H.U.Kueprer shed light on pivotal junctures. Approaching the contours of controlling systematically, their insight crystallizes controlling as an intricate management process. It serves as the linchpin

connecting the realms of control and information provision subsystems, effectively bolstering the framework of system creation and interconnection [37].

Venturing into the realm of intricate economic discourse, V.D.Zubareva and their scholarly compatriots unveil a broader perspective on the controlling system. They articulate that controlling manifests as the orchestrated management of an enterprise, ingeniously calibrated to underpin profitability and production economy [38, p. 113]. A semblance of this notion finds resonance in the literary contributions of other erudite Russian minds.

A.P.Graov, a beacon of wisdom in the field, champions the concept of controlling as a novel and productive management paradigm. This paradigm is the bedrock for securing an enterprise's enduring foothold in the marketplace [39].

Meanwhile, the insights of V. B. Ivashkevich herald a nuanced understanding. Ivashkevich encapsulates the essence of control as a meticulously structured management framework, meticulously sculpted to extract the zenith of profit within the enterprise's confines. Delving deeper, Ivashkevich expounds that controlling is a comprehensive management orchestration. It guides the enterprise's trajectory toward attaining ultimate goals and economic outcomes [40,41].

In business and management literature, a controlling system refers to the set of processes, tools, and strategies used by organizations to monitor, evaluate, and manage their activities to ensure alignment with strategic goals and objectives. It encompasses financial control, performance measurement, budgeting, variance analysis, and other mechanisms to maintain organizational efficiency, effectiveness, and accountability.

In economics and finance, a controlling system might refer to the mechanisms and regulations put in place to manage financial activities, prevent fraud, ensure compliance with financial laws and regulations, and maintain the integrity of financial markets. This could encompass regulatory bodies, auditing processes, internal controls, and risk management strategies.

The importance of the formation of a modern controlling system and its action mechanism in the enterprises operating in Azerbaijan Republic was economically substantiated by me in the multiple previous articles. Structure issues of the staff implementing functions of the controlling system should also be studied along with the application issues of the system. It's one the most important issues from the standpoint of the proper setup of accounting system and increase of its efficiency, because the industrial sector which occupies a significant position in the economy of our Republic is multidiscipline and covers different types of activities such as "mining industry", "processing industry", "distribution and supply of electricity, gas and steam production" and "water supply, waste treatment and processing" etc. There are 2512 operating industrial enterprises at the end of 2012 and 289 out of them belong to mining industry, 1795 to processing industry and 428 enterprises combines other industrial sectors [46].

Controlling is a complex system of effective management based on the integration of accounting, information support, control functions and coordination of management decisions, ensuring the enterprise's successful operation in the long term [42, 6]. To organize the control system in enterprises, the enterprise managers should understand the functional role of the control concept in management.

Controlling is one of the managerial functions like planning, organizing, staffing and directing. It is an important function because it helps to check the errors and to take the corrective action so that deviation from standards are minimized and stated goals of the organization are achieved in a desired manner [52]. According to modern concepts, control is a foreseeing action whereas earlier concept of control was used only when errors were detected. Controlling in management means setting standards, measuring actual performance and taking corrective action. Controlling is embedded in each level of organizational hierarchy, is forward looking, is closely linked with planning and compares actual performance with planned performance.

The main purpose of controlling is to direct the management process to the performance of all tasks facing the enterprise.

The main task of controlling in industrial enterprises is accounting, organizing the planning process, monitoring the implementation of plans, identifying deviations and their causes due to activity evaluation, and developing complex recommendations for eliminating defects [42].

Controlling system, in the context of business management, is not exclusively a computer system. Instead, it refers to a set of processes, practices, and frameworks that organizations use to regulate and manage their operations, finances, and resources effectively. While technology, including computer systems and software, can support and facilitate controlling systems, the concept encompasses a broader range of activities and strategies. Controlling systems involve various components, such as budgeting, cost analysis, performance measurement, risk management, and strategic planning. These components collectively help organizations achieve their goals, optimize processes, and ensure

compliance with financial and operational targets. So, when discussing a controlling system, it's important to recognize that it's not limited to technology or computer systems. It encompasses the entire structure and practices organizations implement to monitor, control, and improve their financial and operational performance.

Controlling can be called the profit management system of an enterprise, as is known the main goal of any commercial enterprise is to generate profit, but in certain cases the goals of the enterprise can be different – e.g. gaining market share, eliminating rivals – and then controlling focuses efforts of the enterprise in the direction of these purposes though an ultimate goal there is a generating profit. The economic essence of controlling has been formed by us as follows via summarising the definitions with different content from existing economic literature dedicated to the organization and management of controlling:

Controlling and respectively the controller, occupies a special position in the enterprise management system by being on crossing of record, informational support, control and coordination: he connects all these functions, integrates and coordinates them, and moreover only takes the management of enterprise to qualitatively new level via not substituting it. Controller is the person who puts into action a peculiar mechanism of self-regulation in the enterprise and provides feedback in a management loop.

Controlling is based on the scientific achievements of various disciplines such as economic theory, analysis of economic activity, accounting, planning, management, sociology etc. Therefore, it is necessary to have a broad outlook and ability to think analytically, moreover a wide range of the subjects connected with economy and management in order to become a controller.

Furthermore, it is crucial to remember that all-encompassing solutions to real economic problems are non-standard and intricate. The constraints of time and initial information often render them insufficient for resolution. Hence, it becomes imperative to adeptly combine diverse approaches and apply accumulated knowledge to formulate creative solutions amidst uncertainty and incomplete information.

One perspective posits the controller as the head of the internal economic and planning calculations service, essentially an estimator. According to this viewpoint, the controller oversees all aspects of the enterprise, continually conducting assessments, and no actions can be undertaken without their approval. However, such a perspective is fundamentally flawed.

The controller can be better characterized as "the economic leader" who utilizes quantitative information to assist managers in various structural and functional departments—such as sales, production, and procurement—in making informed managerial decisions. The controller does not assert control but rather ensures that individuals can autonomously manage themselves in pursuing organizational goals, especially those related to profit, as set by the management. Furthermore, the controller plays a pivotal role in goal setting and planning. Their role in controlling involves alerting management to deviations, prompting corrective actions to ensure that the planned course toward achieving objectives is maintained as closely as possible.

Understanding the role of the controller as a management entity and delineating their responsibilities becomes essential because the controller requires a toolbox to effectively fulfil their set goals. This toolbox comprises managerial accounting, encompassing the recording of

revenues and expenses, allocation, planning, control, and analysis. These elements empower operational decision-making and pre-emptively address potential developmental issues within the enterprise. Secondly, the controller serves as an organizational resource, collaborating with senior management to make informed decisions by employing managerial accounting as their primary tool.

The primary functions of the controller can be categorized as follows, summarizing the outcomes of our research:

- Guidance and Coordination: Overseeing the planning and budgeting processes, ensuring alignment and mutual adjustment of specific goals and plans.
- Information Management: Maintaining an information reporting system that operates accurately and efficiently, providing precisely the information and documents required for decision-making across various functions (management information system).
- Consultation: Guiding departmental employees, particularly those in sales, production, and procurement, during their decision-making processes. Describing the implications of these decisions and offering alternative courses of action to enhance the company's turnover, costs, and profits, along with recommendations for selecting the most suitable alternative.
- Investment Analysis: Conducting assessments of investment efficiency and proposing actions to implement modern management methodologies aligned with the enterprise's interests.

- System Analysis: Analysing the existing relationships, methods, and the state of the management system, comparing them against intended objectives, constraints established by the enterprise board, and effectiveness criteria.
- Asset Preservation: Ensuring the preservation of the enterprise's asset complex.
- Cost Control: Implementing ongoing cost control measures.
- Price Calculation Oversight: Chairing the committee responsible for calculating the prices of goods.
- Incentive Measures: Link employee remuneration levels to key performance indicators, especially for grocery group managers and sales agents.
- Implementation Oversight: Ensuring that intended improvement measures are not confined to paper but are effectively implemented within the operational practices of various departments.

The controller plays a multifaceted role, utilizing both quantitative tools and interpersonal skills to facilitate informed decision-making, uphold organizational objectives, and drive financial performance within the enterprise.

The responsibility directions of each structural unit along with its functions are also important issues. The controller is responsible on the following directions [47, 48].

System responsibility - includes the application of automated accounting system, which is the advanced form of management, creation of ERP database, establishment of the automated business processes according to the production and economic activity, its conformity with

standard, consistency, accuracy, integrity, actuality and reliability.

Reporting responsibility - adequate preparation of the scheduled and actual figures is required for the effective control. This responsibility encompasses several aspects such as – objectivity, feasibility, adequacy to inquiries and solved problems.

Communication responsibility - even, if the planned and actual figures conform to the latest requirements; management should still monitor their proper use. Therefore, the responsibility for transparency also includes constant communication with managers.

4.2. Controlling governance body in industrial enterprises

Role of the controller in the enterprise management system and the subject matter and duties of the controller, formation of which in the industrial enterprises proposed by us are known and understandable. Now it should be clarified what is the difference between the controller and financier?

Controller – is a specialist, who works in the enterprise and guides it towards profit. Financier carries out the function of treasurer. This person keeps finance in an order, operates the cash desk, and conducts negotiation with creditors and the responsibilities of which includes the formation of the balance sheet liabilities. The service organization of controlling would require the inclusion of all operations into the sphere of functional responsibilities of the controller. By the preceding, the controller should focus on internal economic calculations, and the financier must be competent in external reporting issues. In addition to the trading and tax balance, consolidated financial statement of the Concern and international law should be related to them.

Examples of the service organization of controlling in US often show that the departments of controller and financier are also engaged in taxes. In general, it is correct as it is about the post-tax profit. However, this profit remains at the entity's disposal to finance its development at the expense of own means.

At the European companies, the functions of controller and financier mostly carried out by the head of financial and economic calculations service, which can also be a vice-director, director or a board member. If try to separate the

functions of controller and financier assigned to one person among two specialists, it will turn out that the one who better copes with affairs of the head of financial department, most often in compliance with his education and experience will also work with taxes.

The roles of the controller, financier, and manager in an enterprise exhibit notable distinction, despite their collective responsibility for steering the strategic activities of the organization. While the functions of financiers and managers are traditionally entrenched in Azerbaijan's industrial enterprises, the controller's position remains relatively nascent. Moreover, some essential controller functions remain unfulfilled. This gap casts doubt on the effective execution of the enterprise's long-term strategy and financial performance.

To address this challenge, I propose the establishment of a controller position, amalgamating the responsibilities and encompassing multifaceted control functions. These controllers would operate within a dedicated division closely aligned with the management, serving as the initial architects of the decision-making process. The formation of such a structural framework holds paramount importance for industrial enterprises. However, it's crucial to acknowledge that the creation of the controller position alone doesn't provide a comprehensive solution. Rather, an integrated approach is imperative, necessitating the proficient execution of pivotal tasks within the controlling system. These tasks encompass planning, managerial accounting organization, information management, monitoring, control, and economic analysis of outcomes. Upon conducting thorough investigations, it's evident that theorists advocate three potential models for organizing control activities within an enterprise: a dedicated controlling department, a subgroup

within the planning and economic department, or a temporary task force for implementing the control system. Economically speaking, all three variants have their merits. In advanced economies, the establishment of an independent controlling department is a common practice, serving as a critical organizational function. Effective management control is indispensable as control-related issues can result in substantial financial losses, damage to reputation, and even organizational failure. Organizations with robust control mechanisms are better positioned for success, while those lacking such systems may face severe repercussions.

In Azerbaijan, industrial enterprises typically operate as medium and large entities with numerous sub-organizations. This hierarchical structure necessitates a two-stage approach to managing industrial-economic activities. Given these considerations, the introduction of a controlling service for Azerbaijan's industrial enterprises seems well-suited. By studying modern Western management methodologies, we can determine that such a service can either be a permanent fixture or adopt a temporary nature. Embracing the first alternative, which clearly delineates the scope of control, can help prevent the undermining of the controlling service's credibility among management personnel. From an economic and scientific perspective, Table 6 presents a balanced assessment of the advantages and deficiencies associated with the creation of an independent controlling service within an organization. [50]. It highlights the need for a nuanced understanding of the potential benefits and drawbacks of establishing an independent controlling service. Scientific analysis would delve deeper into the organizational psychology, human resource dynamics, and change management strategies necessary to navigate these

challenges effectively while harnessing the benefits of enhanced control and information management.

Table 6. Advantages and deficiencies of the creation of independent controlling service

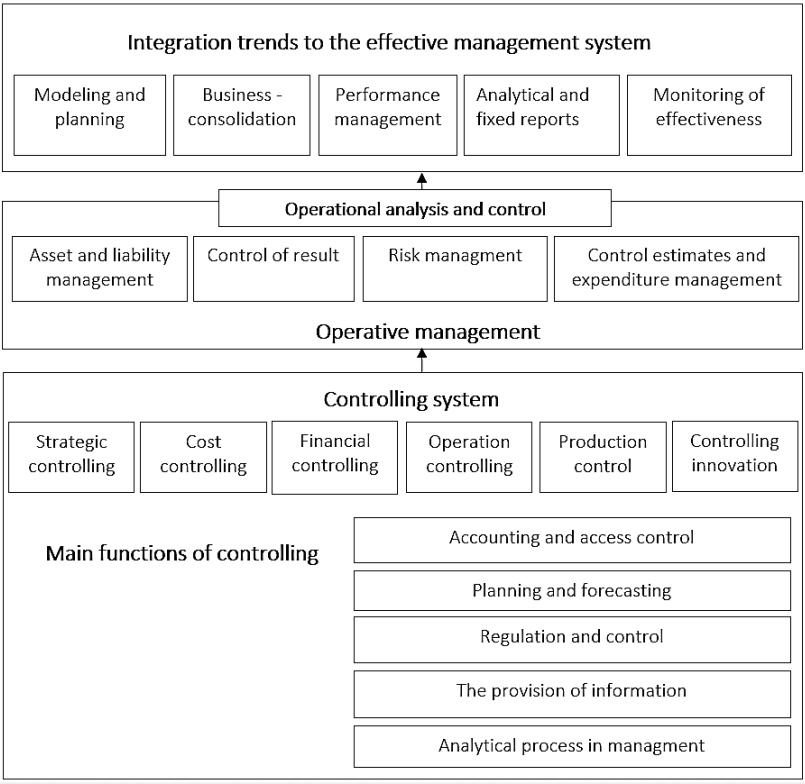
Pros of the creation of controlling service	Cons of the creation of controlling service
The existence of a specific person who conducts the control function and who is directly responsible for the decision-making on information provision.	Changing the previous organizational structure of the management and explaining its reason will be required.
The information on the financial-economic situation of the enterprise will be concentrated in one point and availability of this information will be prompt.	Finding a controlling employee with diversified knowledge who thoroughly learned production and accounting is very difficult.
The plans of all sectors will be coordinated and their correctness will be controlled much better if one division deals with this issue.	There is a threat that the impact of controlling service to other divisions can increase and cause the collective's dissatisfaction.

The controlling service is pivotal in this context by operating harmoniously with the overarching strategic management system. This integration is best depicted through a comprehensive three-level framework, as illustrated in Figure 6.

At the first level, we encounter integration trends to establish a highly effective management system. This foundational level is the bedrock upon which the entire

operational structure is constructed. The primary objective is to ensure that all facets of the organization align with its strategic objectives, facilitating a seamless flow of information and decision-making. Economically, this alignment translates into increased operational efficiency, cost-effectiveness, and optimized resource utilization, ultimately leading to improved profitability.

Figure 6. The integration scheme of controlling system to the management activities



Progressing to second level, I delve into operational analysis and control. This stage involves the thorough

examination and regulation of day-to-day activities within the organization. By meticulously monitoring operations, organizations can identify inefficiencies, bottlenecks, and opportunities for improvement. From an economic perspective, this level nurtures a culture of continuous improvement, where resources are allocated judiciously, and processes are refined to enhance productivity. This, in turn, directly affects reducing operational costs and enhancing competitiveness. Finally, at the pinnacle of this three-level system, we find third level, which constitutes the core of the controlling system. Within this tier, various subdomains contribute to the overall efficacy of the organization. Drawing upon research findings and economic expertise, I am equipped to thoroughly analyse each of these types of controlling and offer comprehensive explanations. Subsequently, let's delve into the primary functions delineated within the scheme:

Strategic controlling entails overseeing strategic initiatives and their alignment with long-term organizational goals. Economically, it ensures that investments and resource allocation align with the organization's strategic vision, thereby maximizing return on investment.

Cost Controlling is crucial for economic sustainability. By monitoring and managing expenses, organizations can optimize their cost structures, allocate resources judiciously, and enhance profitability.

Financial Controlling is paramount for ensuring the organization's financial health. It encompasses activities such as budgeting, financial reporting, and risk management. From an economic standpoint, this level of control ensures financial stability and resilience in the face of economic fluctuations.

Operational Controlling enhances operational efficiency by streamlining day-to-day processes, reducing waste, and

boosting productivity. The economic benefits include reduced operational costs and improved competitiveness.

Production Controlling optimizes production processes by managing production schedules, minimizing downtime, and ensuring quality standards are met. Economically, this leads to increased production output and reduced production costs.

Controlling Innovations encourages a culture of innovation within the organization, fostering research and development efforts that align with strategic objectives. The economic implications are increased competitiveness and revenue growth through new products or services.

In summary, the three-level integration system depicted not only enhances the organization's overall effectiveness but also carries significant economic implications. By aligning strategic, operational, and controlling efforts, organizations can achieve higher efficiency, reduced costs, improved financial stability, and a competitive edge in the market. This integrated approach is a cornerstone of modern economic success. Moreover, execution of the controlling functions enables the identification of the reserve opportunities for the effective decision-making in addition to the management of the industrial-economic activity and the analysis and cost control. Controlling system is the executer of the mentioned sub-functions at each level. The independent controlling service leads to the creation of the prompt monitoring at the enterprise. The following main purposes of the monitoring should be highlighted after the formation of controlling management body at the industrial enterprises [51]:

- assessing the status and development dynamics of the enterprise;

- identifying the destructive development trends and processes of this production potential;
- determining the causes, sources, characters and intensity of the impact of hazardous factors for the production potential;
- forecasting the impact results of the hazardous factors for both production potential and scope of activity;
- Systematically and analytically studying the current situation and its development trends, developing the purposeful actions for preventing the hazards that may arise in the enterprise.

A comprehensive scrutiny of the contemporary controlling paradigm, strategically tailored for application within industrial enterprises, yields the subsequent set of recommendations:

- Within the industrial landscape of the Azerbaijan Republic, a strategic imperative beckon: the assimilation of an integration framework for the controlling system into the fabric of management activities. This pivotal integration ought to harmonize with the overarching trend of fostering an efficacious management ecosystem. The endeavour is to realize a seamless convergence that propels enterprises towards optimal efficiency and informed decision-making.

- In the context of expansive ownership entities, a reasonable evaluation of the advantages and disadvantages of an independent controlling service is paramount. The exploration of a dedicated controlling department warrants consideration. This assessment hinges on the calculus of pros and cons, anchoring it in the larger landscape of enterprise management. This

measured approach to institution building is primed to cater to the distinctive needs of extensive ownership domains.

- A nuanced orchestration of the controlling department necessitates delineating precise roles and responsibilities for its controller. This delineation is envisaged as an outgrowth of the considerations in the section dedicated to the "concept of the controlling system." By methodically distilling the essence of this conceptual foundation, the duties and obligations of the controller can be impeccably classified. This precise classification ensures the optimal alignment of the controller's undertakings with the broader objectives of the controlling department.

4.3. Controlling system in small and medium enterprises

According to my observations, it is appropriate to study the level of SMEs research, its definition in the field literature, and its direction of action in the specific practice. First of all, need understand which enterprises are called SMEs, the overall look will be needed to gain in both quantitative and qualitative dimensions of the particular. Generally, each country has legislation to define the micro, small, and medium enterprises by its annual revenue/ balance sheet turnover, the employee number, industry, and other factors. For example, the definition of SME in United States depends on the number of employees, turnover, and the industry as the number of employees should be less than 500, the turnover should be [71].

The perception and division of SMEs in Azerbaijani law are as follows [72]: Micro Enterprises: Micro enterprises are defined as companies with a turnover of up to 200,000 AZN annually and an average annual staff size of up to 10 employees. Small size and scarce resources are characteristics of these businesses. Small Enterprises: Small enterprises are defined as companies with a yearly average of 11 to 50 employees and a maximum annual revenue of 5 million AZN. Compared to micro enterprises, they have a relatively larger workforce and a higher turnover rate. Medium-sized Enterprises: Medium-sized enterprises are defined as companies with a turnover of up to 10 million AZN annually and an average annual employee count of 51 to 250. These businesses are more operationally capable because of their larger employee bases and higher turnover rates.

SMEs have a key impact on the emerging economy in terms of its contribution to the 90% of formation of businesses, 50% employment rate, and 40% national income (GDP) [73]. It is also crucial to note that SMEs also plays a key function in the implementation of SDG goals in the economy, reduce the inequal revenue, encourage the innovative startups, and endorse sustainable industrialization [74]. It is the fact that in Europe's biotechnological field, SMEs hold 20% of patent rights in the region [75]. In Lebanon, to encourage innovative SMEs, the governments provide equities in addition to the grants in the project with the budget of $30 million (The World Bank) [73]. From the perspective of the economy module of Asian countries, according to ADB (Asian Development Bank), SMEs covers almost 96% of the enterprises in the Asian economy and holds the employment rate of approximately 66% in private sector which specifies how Asian economy is dependent on the SMEs functionality [76].. To boost the SME growth, enterprises will need to be transformed to the digitalization in open environment which enabling them to trade in the global market. After Covid-19, the research conducted by Deloitte shows that approximately 40% of SMEs stated that they have experienced the customer growth after using digital attributes in their businesses [77].

In developing countries, there is a noticeable finance gap in the early stages of SMEs as the potential SMEs are having trouble financing their enterprises and most often referring their internal funds, borrows, or finding the angel investors. To overcome financing barriers, the World Bank introduced Advisory and Policy Support to develop the policy, improve the digitalization, advise the enterprises in paperwork in SME finance. The SMEs of Asian countries face the similar issues in the financing as the Asian countries are bank dominant

instead of capital market financing which ends up for the enterprises to have only one option in financing that is lending funds from banks with high interest rates [76]. The consequences of the inaccessibility to funds cause the loss of interest for SMEs in their growth and damages the development of economy in greater picture which government in this stage takes actions for easing the financing methods for SMEs and provide exceptions and privileges in tax and other terms to encourage their growth.

The expansion and development of SMEs in Azerbaijan depend heavily on access to financing. The following data gives an overview of SMEs' access to finance in the nation, despite the lack of specific citations for this topic: In Azerbaijan, SMEs frequently struggle to obtain financing from conventional financial institutions like banks. It is challenging for SMEs to obtain loans or credit due to the limited availability of collateral and the perceived high risk associated with SMEs (World Bank Group). The Azerbaijani government has implemented several support programs designed to improve SMEs' access to finance to address these issues. These initiatives include initiatives for targeted financial assistance, credit guarantee funds, and subsidized loan plans. For example, the Azerbaijan Mortgage Fund offers business owners loans to launch or grow SMEs. Azerbaijan is seeing the emergence of alternative financing options in addition to government assistance. Microfinance organizations and non-banking financial institutions facilitate access to capital for SMEs, who frequently have more lenient lending standards. A growing number of innovative and fast-growing SMEs are turning to venture capital funds and crowdfunding platforms as alternative funding sources.

Pinho and Martins [60]. sought to identify some significant obstacles that would prohibit Portuguese SMEs

from expanding internationally. The lack of qualified export personnel, a lack of technical suitability, a high level of sector competition, a lack of financial assistance (from the state and financial institutions), and a lack of qualified human resources were found to be the main export barriers in their study comparing the export barriers faced by SMEs. On the other side, they discovered that exporter's view storage and management of physical product flow as the major challenge.

Wasowska looked at the differences perceived by various firm groups (non-exporting companies, future exporters, pre-exporters, experimental exporters, interested exporters, active exporters, committed exporters, and failed exporters) to examine the development of barriers throughout the firm's internationalization process using the example of 7,515 European SMEs [78]. He looked at both internal and external barriers, or those caused by the company's resources, equipment, marketing, and strategy. He discovered statistically significant disparities between some of the groups under investigation. This demonstrates how perceptions of impediments to internationalization can alter during a company's life cycle.

The effect of small enterprises on perceived obstacles and performance was studied by Sinkovics et al. in 2018. They discovered that matching lessens the detrimental effect of perceived internal performance hurdles using a sample of 106 UK-based small and medium-sized firms (SMEs). Additionally, empirical findings demonstrate that experience and dedication lower managers' perceptions of internal and external impediments [79].

Wijayaratne and Perera identified key export challenges Sri Lankan SMEs face, including financial, governmental, and economic hurdles [80]. Subsequently, they pinpointed ten sub-barriers in the export market, including high capital costs,

limited government incentives, outdated technology, complex documentation procedures, limited financial resources, trade barriers, currency fluctuations, pricing competitiveness, foreign customer issues, high insurance costs, and insufficient corporate support.

In another study, Bianchi explored the factors influencing small and medium-sized family enterprises in a growing market, emphasizing the distinctions between exporters and non-exporters among Chilean family SMEs [81]. The research revealed common challenges for family-owned SMEs, such as selecting reliable distributors, financial constraints, limited government assistance, and a lack of international management expertise. Significantly, variations in these factors were identified between exporters and non-exporters. Growth restriction, political restrictions, political stability, legal processes, a lack of quick services, corruption, social restrictions, language issues, various social approaches, a lack of skilled human resources, inadequate educational institutions, and economic restrictions, including financial, customs procedures, customs duties, and exchange rate risk, were found to be the main restraints in Mendy et al.'s (2020) study on the determination of growth factors of Bangladeshi SMEs. In the field literature and the specific practice [56, 57], the use of terms such as controlling remains highly ambiguous. The economic literature proposes numerous ways of considering the concept of control (considering its mechanisms, role and objectives), classified on branches of economic science from which management, finances, accountancy, audit, etc. are derived. I briefly review several of these approaches, emphasizing that the concept of control is not an exclusively economic category [53]. Cost controlling and profit management systems hold a distinctive place in the economic literature of Germany, the very country where the

notion of controlling initially took root. This comprehensive approach encompasses the planning of key performance indicators alongside the assessment of actual results and the corresponding procedural measures. While many definitions of controlling may not explicitly incorporate the evaluation aspect, its implicit goal is to rectify deviations from planned data. Remarkably, these principles are highly applicable to SMEs.

It's imperative to recognize that the precise implementation of a controlling system can vary significantly based on the unique nature of the SME, its industry, and its strategic objectives. Thus, customization is key, tailoring the controlling system to align seamlessly with the organization's distinctive requirements. Within a market-driven economy, a prevalent trend among small-sized enterprises is the establishment of internal audit and self-controlling mechanisms. This preference stems from the recognition that modern controlling practices, as adopted by larger and medium-sized enterprises, demand substantial financial resources and administrative capacity. The mobilization of these resources can pose challenges for SMEs.

The self-controlling system, which can be established more cost-effectively, serves as a proactive means of detecting and pre-empting deviations in production, commercial, and economic activities. This proactive stance not only enhances the company's reputation but also fosters goodwill among stakeholders. The scope of such internal control mechanisms remains somewhat limited in its coverage, typically applicable at the governance level of small business organizations. Consequently, there emerges a pressing need for a systematic exploration of self-controlling practices, accompanied by the identification of its diverse directions.

4.4. Self-controlling in profit analysis system of SME

Contemporary demands for effective controlling practices now emphasize the incorporation of self-controlling concepts. Self-controlling can be defined as an internal system that integrates informational support for both planning and monitoring within a company. Its primary aim is to establish a strong correlation between individual motivation, work performance, and the overarching objectives of both the company and its employees. In the realm of self-controlling, it's crucial to perceive it as an open system, susceptible to influence from both external and internal factors that may disrupt its equilibrium. In open systems, such imbalances often serve as catalysts for evolutionary development, propelling the system to a higher level of quality. A defining characteristic of such systems is self-organization, with employees as the active subjects and the organization itself as the object of control.

Recent perspectives on self-controlling consider it a specific function within the broader context of rational organizational management. This function enhances the likelihood that managerial actions align with the predefined relationships between goals and resources. Initially, this entails recognizing the significance of these goal-resource relationships by those responsible for implementation. Subsequently, actual control involves identifying and mitigating deviations by adjusting these relationships or altering their implementation methods. In this context, the concept of controlling is more focused compared to its coordinating counterpart, encompassing not only the

execution of management activities and control but also their organization or preliminary coordination.

Self-controlling also underscores the interplay between informational support systems and planning. Individual departments engage in detailed planning based on the target values established by the organization's leadership. These departmental plans are then consolidated and harmonized at the highest organizational level, typically through a three-year operational planning process.

Furthermore, staff training is essential for the continued enhancement of the controlling system and the resolution of conflicts between functional units. Cultivating an organizational culture where all employees embrace the fundamental principles of controlling is instrumental in enabling self-controlling to function autonomously without constant intervention by a dedicated controlling unit.

Azerbaijan Republic is witnessing a consistent increase in the number of small enterprises annually. However, this growth is primarily concentrated in sectors such as trade, repair, and transport. Meanwhile, sectors of paramount economic importance, such as industry, construction, education, and IT, continue to experience limited participation from small businesses. This observation underscores the need to explore the dynamics of these vital economic domains and the unique challenges and opportunities they present for SMEs. A comprehensive exploration is required to differentiate between enterprises operating within the Republic of Azerbaijan based on their legal status—whether they are classified as natural persons or legal entities. The landscape, as it stands, showcases that private business entities constitute a staggering 92% of the total small enterprises. This data underscores the dominance of individual entrepreneurship within the fabric of small-scale

ventures. However, navigating such a milieu calls for formulating a robust self-controlling framework that acts as a bulwark against the spectre of bankruptcy.

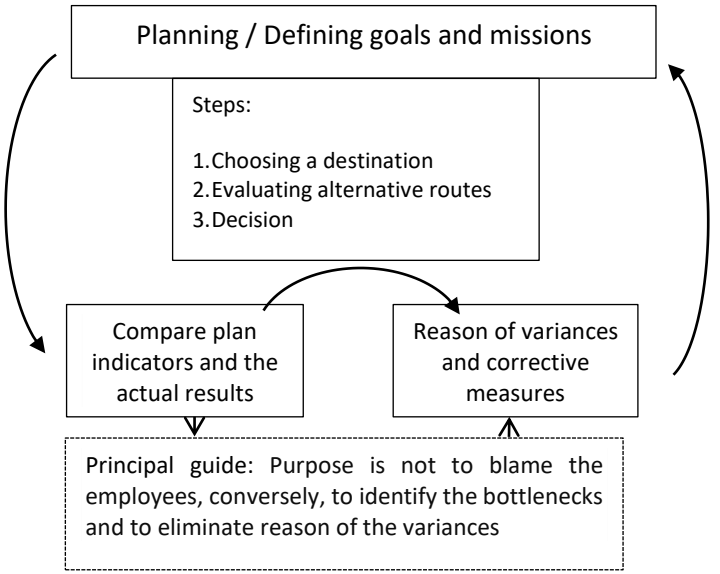
Regrettably, the realm of small entrepreneurship in Azerbaijan grapples with a notable absence: the dearth of structured planning and analytical rigor regarding variance and bottleneck assessment. This void necessitates the inception of a self-controller's role, which should be anchored in meticulous planning—a foundational step that entails the establishment of performance benchmarks for specific periods. The linchpin of this process is the judicious use of raw information, serving as the bedrock for formulating strategies to attain desired objectives. In essence, planning serves as a blueprint for orchestrating and aligning activities towards the realization of coveted goals, thereby charting a course amidst the intricacies of the business landscape. Patrick Montana and Bruce Charnov outline a three-step result-oriented process for planning:

1. Choosing a destination,
2. Evaluating alternative routes
3. Deciding the specific course of plan [54, p43].

Planning is a management process concerned with defining goals for the small sized enterprises' future direction and determining its mission and resources to achieve certain targets. To meet these goals, managers may develop plans such as a business plan or a marketing plan. Planning should always have a purpose. The purpose may be achievement of certain goals or targets. On the other side, planning involves the creation and maintenance of a plan by using information management systems. In itself, information management system is aimed at improving the quality of this information and planning process. Planning figures are compared to

actually achieved values by contrasting the established results with the causes of variances and then errors are eliminated and corrective actions are developed. Then the planning process follows again, completing the cycle. The essential part for properly functioning this self-controlling "cycle" is understanding that the variances are due to changes in the internal and external environment. So, we cannot take these factors as evidence against employees. The variances must be considered grounds for developing corrective measures to achieve planned objectives or adapt to changing conditions. The functional outline of self-controlling is more conceptually expressed by the following cycle (Figure 7).

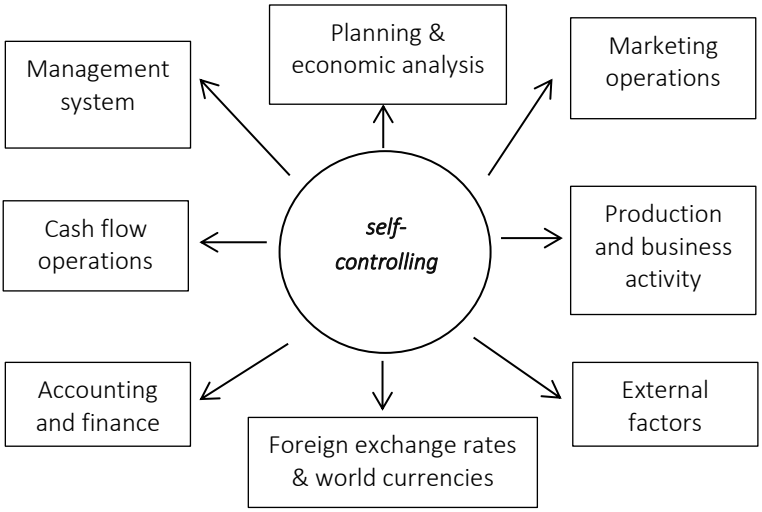
Figure 7. Job functions of self-controller in the SMEs



Even though the modern controlling system is not practiced in small business, certain conditions necessitate the control over them. They determine the main trends of self-control.

Doubtlessly, self-control is a control mechanism to keep the focus in the following areas (Figure 8).

Figure 8. The main trends of affecting self-controlling in the SMEs



As shown in the scheme above, in the small sized enterprises at the stage of establishing a self-controlling system, it is necessary to be classified as an integrated unit and appoint the efficiency trends. Each of the following criteria should be considered separately during the formation of self-controlling:

- economic condition of the company;
- understanding of managers and owners about importance and usefulness of controlling and its functions;
- company size;
- diversification level of production, terminology of the finished products;

- the existing level of competition;
- qualification management personnel.

Depending on the size and condition of these factors , the manager can decide the creation of self-controlling. The newly established self-controlling can provide methodological support, regulation, coordination, innovation and provision to managers with the necessary information for future management decisions. In summary, the efficiency of self-controlling system is a complex economic category, which characterizes the degree of customer satisfaction at a given level of inputs.

4.5. Formation of controlling system in Azerbaijan's industrial enterprises

The irreversible transition of the economy from planned-allocation system to a market economy and its integration to the global economic community raised the competitiveness issues of industrial enterprises to a new level. One of the factors conditioning by the decline of labour productivity, decrease in efficiency of the utilization of production capacities is the lack of skills at the industrial enterprises on adequately perceiving and reacting to the changing economic conditions of environment.

In practice administration increases the role of intra-firm management of enterprises. Dominating traditional concepts, methods and management instruments do not allow to through and through effectively design and apply the enterprise management systems in practice. The enterprises facing issues on the need of management in the conditions of growing competitiveness, volatility of the external environment and the need of rapid response to changing conditions. It can be concluded that the specific forms of management applied by enterprises in the external environment are inconsistent. One of the effective and up-to-date forms of intra-firm control of entities is the controlling systems that allow achieving a long-term sustainable development under severe competence, and often serious social restrictions. Controlling systems allow identifying intra-firm and inter-firm economic ties and creating a favourable basis for managing them by linking the processes of planning, accounting, analysis, control and decision-making into a single whole. Orientation to

objectives, enterprise capacity and market opportunities allow to improve the enterprise management as systems in the controlling operation conditions.

When considering the controlling as an instrument and object of study, promoting increase of efficiency of intra-firm management, it is necessary to clear up concerning essence and the content of this concept, to determine its place in the enterprise management system and to correlate the controlling with other tools of intra-firm management.

Since the purposes of controlling are derived from the enterprise's objectives, it is necessary to specify the essence of the enterprise concept. The enterprise can be defined as a social and economic system (irrespective the forms of ownership) that reaches its material, cost and social goals using production of goods and services demanded by the market.

Material objectives (the objectives of achieving specific material outcomes) include the future product and market program of an enterprise or product program. The material objectives can also have a value term. These objectives are achieved using the implementation of activities.

Cost (monetary) objectives: estimated future financial results (e.g. equity value, estimated and balance sheet profit) or the separate components of these financial results (receipts and payments, proceeds from sales of products, costs, income and expenses), and also the level of liquidity and liquidity components which are necessary for the existence of the enterprise (availability of current assets, receipts and payments of cash). Cost objectives can be characterized by the absolute and relative indicators (e.g. annual profit and profitability) and implemented only by achieving tangible goals.

Social objectives – mutual relations between the people both inside and outside the enterprise desired in the future. This type of objectives determines the behaviour model in relation to the staff, persons and public groups in subsystems of the enterprise and to environment. Partly this behaviour is consolidated legislatively. The matter concerns both monetary and non-monetary objectives (e.g., income level of the personnel, interesting work, culture of the company, the identification of employees with the company and its objectives and image, environmental protection). Social objectives can be achieved via the implementation of the material and cost objectives.

By summarizing the ideas of Albrecht Deyhle who explained the theoretical and practical aspects of controlling it can be said that the governing body of controlling is responsible for the enterprise's achievement of objectives together with the management by being the service authority on planning and management oriented to the strategic objectives of the company which is acting as a single target orientation and controlling moderator [61, 62]. In Europe and US the controlling exists within the objective conditions and develops under the influence of various factors today. But in Europe or the US, the created controlling differs for the content of the implemented tasks. In general, planning, analysis and controlling issues are become actual and relevant in German model. The issues on internal financial accounting along with the previous issues are included to composition of the controlling system in American model. In other words, the preference is mainly given to the issues such as accounting, planning, analysis and reporting at those management bodies in US. They are as follows:

- Working out and controlling over the implementation of the action plan of enterprise;
- Comparing the obtained results with plan and standards;
- analysing the economic activities and informing all the management levels about the results;
- Integrated evaluation of the activities of managing and managed systems and discovering extra opportunities;
- Forming advanced principles and working methods in the field of tax payment;
- Providing the insurance and security of property by implementing internal control and inspection;
- Evaluating economic, political and social factors' influence on the enterprise activity by continuously investigating them.

Usually the controlling management body prefers the execution of the following issues in the European countries:

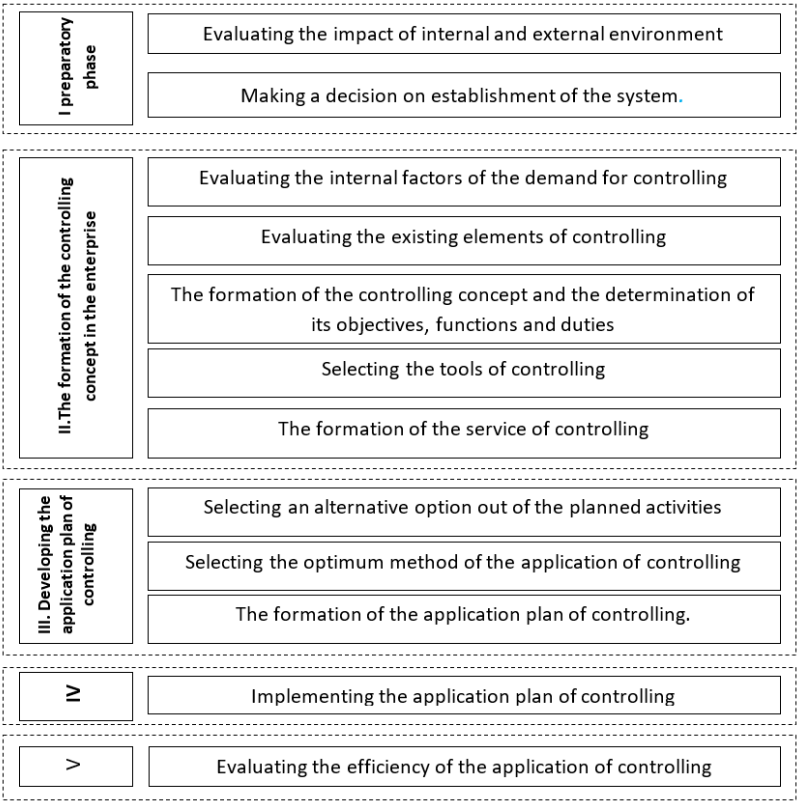
- Advising on financing and coordinating it;
- Advising on strategic planning;
- Advising on long-term planning;
- Managing the calculation and evaluation of the results of costs, production and sales;
- Managing the internal press-service;
- Conducting a special economic research [63].

In general, the controlling is a costly system. Therefore, its implementation in the large industrial enterprises and holdings are deemed expedient. However, the several methodical requirements shown below should be followed while designing the system [64, 65 p.96].

First of all, the phases of establishing the system should be determined correctly. The establishment phases of controlling system in the industrial enterprises and the

content of each phase were developed in a schematic form as follows from our party by benefiting from the international expertise on designing the management structure (Figure 9).

Figure 9. The content of the organizational stages of controlling



This figure illustrates the need to assess internal and external environmental factors that could affect enterprise operations. The initial phase involves making the crucial decision to establish a controlling system. Subsequently, in the second phase, the conceptual framework for controlling is shaped within the enterprise. It also highlights the actual

creation of the controlling system in this second phase. During the development of this service, a critical step is the selection of appropriate tools for executing control activities. This selection process involves diagnosing the elements of the controlling system across various processes. Additionally, a systemic approach is favoured in this phase, with an evaluation of potential risks inherent in the formation of this new structural unit. This meticulous risk assessment is essential to ensure the long-term viability and resilience of the controlling ser [42]. Certainly, the establishment of a controlling service should align with the unique characteristics and specific circumstances of each enterprise. These conditions encompass the following:

- Objectives system of the enterprise;
- Size of the enterprise and the placement of its structural divisions on the area;
- General management concept of the enterprise;
- Production structure and financial stability of the enterprise;
- Sales structure;
- Market structure, the level of competition in the market;
- Features of external factors;
- The status and legal form of enterprise;
- The level of access to financial and raw material resources.

The decision on applying the controlling system in the enterprise should be made by considering these issues and the application plan should be developed based on this decision. This strategic document combines the enterprise's formation of the controlling system and the work plan on the areas requiring control. The application plan should be implemented by considering the document's requirements.

The controlling service should be created and the rights, duties of the employees and the statue and authorities of the service division should be developed.

Finally, the efficiency of this system should be evaluated after the certain lapse of time since the system's activity at the last phase. In my opinion, the efficiency of the controlling system should be evaluated according to the following criteria:

- The quality of the statement of controlling process and the level of information provision of the structural divisions;
- The expedient organization of controlling in the functional management spheres (planning, accounting, control, etc.);
- Achieving the objectives on the types of controlling (increase in profit, cost reduction, positive dynamic growth of financial stability ratios, saving material, energy and labour costs, etc.);
- The benefit from the creation of controlling service (revealing and evaluating the reserves, deviations and threats and prospective activities);
- Substantiation of the made management decisions (reduction of the management risks);
- The time spent for making the substantiated management decisions.

4.6. Corporate governance and business data management

The controlling system framework represents the pragmatic embodiment of corporate governance principles, serving as the conduit through which an organization's activities are overseen, regulated, and synchronized with its professed values and objectives. It serves as the vital linkage that bridges the gap between corporate governance theory and the day-to-day functions and decisions of the entity. This control framework encompasses a spectrum of components, encompassing internal controls, financial reporting mechanisms, compliance protocols, and risk management strategies. These constituents play an indispensable role in assuring that the corporation conducts its affairs in an ethical, legal, and stakeholder-centric manner. The absence of an effective control framework could render corporate governance principles merely theoretical, failing to realize their intended goals of transparency and responsible management.

Corporate governance, in essence, comprises the principles, practices, and processes governing an organization's direction and governance. Its primary aim is to safeguard the interests of diverse stakeholders, encompassing shareholders, employees, consumers, and the broader community. A robust control framework assumes paramount importance within this overarching framework, as it enforces the policies and directives established by corporate governance mechanisms.

Corporate governance within industrial enterprises represents a central concern in numerous economies.

Nevertheless, the peculiarities inherent to the privatization process, production nature, and cultural characteristics render industrial enterprises, a pivotal component of the economy, non-uniform, rendering establishing an effective corporate governance system considerably more challenging. While corporate governance has held a central position in developed economies for an extended period, the applicability of many findings from developed nations remains limited in transition economies. The divergence in corporate governance and control paradigms across countries results from national disparities in ownership structures and corporate board compositions.

Simultaneously, regardless of ownership form, every industrial enterprise relies on universally accepted tenets of advanced corporate management. These principles encompass public accountability, the reverence for the rights and interests of all stakeholders, the cultivation of ethical conduct, decision-making processes, risk management, responsible business conduct, and corporate collaboration. By the enterprise's developmental strategy, an automated accounting system assumes particular significance in analysing various decision-making scenarios, identifying potential risks, and effectively controlling these processes. Considering this perspective, it is pertinent to investigate the role of automated accounting systems in the organizational framework of corporate governance within the industrial enterprises.

The practice of corporate governance in organizations has developed rapidly in recent times, and its importance has been highlighted around the world. It has even been adopted by countries that have not yet regulated the adoption of corporate governance in their organizations. The global interest in corporate governance is because it underpins a

company's operating framework. Therefore, the adoption and implementation of the management practice is expected to benefit the owners, since they are committed to using the principles and mechanisms, which in the broadest sense amounts to an effective monitoring of the activities of a company, particularly when the principles of disclosure and transparency are adopted [66].

The phrase corporate governance came into prominent use in the 1980s and is often used narrowly to refer to the mechanisms and rules that govern relationships among direct corporate participants in publicly traded firms, especially shareholders, directors, managers, and sometimes employees. However, historically, questions about social control over corporate behaviours have been quite important. Since the corporate form first emerged as the dominant way to organize big business enterprises in the second half of the nineteenth century, policy concerns about corporations have, at various times, focused on antitrust, consumer protection, pollution control, worker and investor protection. Corporate management is a strategy for managing the organizational-legal form of business, optimizing organizational structures, establishing inter-firm and intra-firm relations of the company by the accepted goals [67].

The research shows several ideas in different literatures about the essence of corporate governance. Paying attention to several notes about this in foreign literature can be important in determining the direction of our research. At the same time, I believe that it will help to determine the role of the automated modern accounting system in corporate management.

According to international corporate governance researcher Denis and McConnell effective corporate

governance should guarantee shareholders' value by ensuring the appropriate use of firms' resources, enabling access to capital and improving investor confidence [3]. Some authors (e.g., Rwegasira, 2000; Nam et al., 2004) have argued that good corporate governance prevents the expropriation of company resources by managers, ensuring better decision making and efficient management [69]. This results in better allocation of company resources and, ultimately, improved performance.

The main function of corporate management is to ensure the corporation's work within the interests of the financial resources that make up the corporation. In other words, corporate governance is a complex of mutual relations between the company's management, supervisory board, shareholders and other interested parties. A corporate governance system consists of structures and processes designed for the management and control of a company, the main purpose of which is to achieve sustainable development by promoting fairness, transparency and mutual accountability in companies. In my opinion, corporate governance is more than just procedures and rules. This is a different management view: "the ability to see one's interests in the interests of others. “Corporate governance represents an intellectual endeavour as much as it stands for an institutional framework. Around the turn of the millennium, another contemporary development shaped the understanding of this concept – namely, a growing interest in ‘governance’. Recently, our country has witnessed significant shifts in its corporate management landscape development. These changes have been driven by key initiatives, including the 'State Program for the Development of Industry in the Republic of Azerbaijan for 2015-2020,' approved by the President's Decree on December 26, 2014, and the 'Small and

Medium Enterprises in the Republic of Azerbaijan,' sanctioned by the Decree on December 6, 2016. To effectively implement the 'Strategic Road Map' for consumer goods production, it has become imperative to introduce corporate management principles into Azerbaijan's industrial enterprises. Achieving this requires a comprehensive understanding of the economic and legal aspects of the matter. Article 109, Clause 32 of the Constitution of the Republic of Azerbaijan provides a relevant legal foundation for this pursuit. Global experience has demonstrated that the governance structure of legal entities typically comprises a general meeting of shareholders, a board of directors (or supervisory board), an audit commission, and an executive body, with some exceptions. Although the general meeting of shareholders holds supreme authority over critical management matters, day-to-day management primarily falls under the purview of the executive body, overseen by the supervisory board. Thus, additional legal mechanisms are necessary to mitigate representation risk effectively. The 'Azerbaijan Caspian Sea Shipping' Closed Joint Stock Company adopted the Corporate Governance Code during a Board meeting on December 30, 2016. This Code aligns with international corporate governance principles and regulations, defining the company's corporate governance fundamentals. It encompasses advanced principles and provisions to enhance transparency and openness in the company's operations. The Code governs the executive body, supervisory board, state institutions, shareholders, and other stakeholders. It addresses various aspects of ASCO's management, shareholder rights, norms, and the entities and individuals involved in these processes. By corporate governance practices, the Code establishes rules to ensure transparent operations, define the powers and

responsibilities of ASCO's governing bodies, and create a framework for efficient organizational work and shareholder rights protection. The Code also outlines practical guidelines for transparent information disclosure, internal control requirements, and risk management to establish a reliable and transparent accountability system.

In a presidential decreed dated January 23, 2021, efforts were made to enhance the efficiency of the SOCAR by implementing modern corporate management standards. Given the evolving global economic landscape, including the foreign oil market, improving SOCAR's corporate governance system and business model became imperative to enhance its competitiveness, financial stability, and overall effectiveness in management and investments, thereby increasing the value of its assets significantly.

Consequently, the powers of the Supervisory Board were expanded to include the approval of agreements exceeding 25 percent of SOCAR's net assets or with a relevant party representing 5 percent or more of SOCAR's assets, as assessed by an independent auditor. To evaluate this new management system, Ernst & Young, a renowned global audit firm, was engaged to prepare a 'Report on the Evaluation of the Corporate Governance System's Maturity Level in SOCAR.' This assessment evaluated the current maturity level of SOCAR's corporate governance system, including each component and fundamental results, to identify desired indicators and areas for development. Significant progress has been made in the company's efforts to prepare key performance indicators, with over a thousand indicators identified and approved. These indicators will serve as strategic goals, forming the basis for an effective evaluation and motivation system in the next stage of development. Good corporate governance is a foundation attribute for a

healthy industrial company. It sets the tone for how the industrial company generally operates and behaves internally and in the market. It defines the relationship between the Board of Directors, management and the rest of the industrial company. It is a performance issue. This performance is ensured by communication, reporting and information flows between the Board and management. It is safe to say that it is directly related to the especially relevant reporting indicators for the performance assessment and for this purpose indexed indicators are required.

The achievement of these indicators determines the use of multi-model database SAP HANA system. As a platform for ERP software and other business applications, SAP HANA can be placed on premises, in the cloud, or both, in a hybrid cloud system. From this point of view, the research conducted in forming such a management system in industrial enterprises of Azerbaijan is theoretically and methodologically imperative. After multiple global crises, corporate governance has received considerable attention in the business environment. Corporate governance is seen as a critical tool in building marketplace confidence and attracting investors in all companies globally. Setting standards and procedures of good corporate governance is essential for ensuring investor rights, reducing risks, and improving enterprise performance [70].

Corporate governance is more than just process and also extends to the technology used in the software itself. Here are a few case studies of industrial enterprises that highlight various aspects of corporate governance, strategy, and challenges:

Volkswagen Emissions Scandal [95]: In 2015, Volkswagen, a leading automotive manufacturer, was embroiled in a major scandal when it was revealed that the company had

manipulated emissions tests on its diesel vehicles to meet environmental standards. This case study emphasizes the importance of ethical conduct and transparency in corporate governance. It highlights how corporate decisions can have far-reaching consequences on the company, the environment, and public trust.

Toyota's Quality Control Crisis: Toyota, a leading automaker, faced a crisis in the late 2000s when it had to recall millions of vehicles due to safety issues related to unintended acceleration. The Toyota case underscores the importance of product safety and quality control in the automotive industry. It highlights how effective crisis management and a commitment to transparency can mitigate long-term damage.

Boeing 737 MAX Crisis: Boeing, a renowned aerospace manufacturer, faced a crisis with its 737 MAX aircraft following two fatal crashes in 2018 and 2019. Investigations revealed issues with the aircraft's design and the company's safety oversight. This case illustrates the significance of robust risk management, regulatory compliance, and board oversight in the aerospace industry. It emphasizes how corporate governance failures can lead to significant financial and reputational damage.

Siemens' Transformation: Siemens, a global conglomerate, faced allegations of bribery and corruption in the mid-2000s. The company underwent a significant transformation under new leadership. This case study demonstrates how a commitment to ethical conduct, leadership changes, and a renewed focus on corporate governance can help an industrial giant regain its reputation and competitiveness.

General Electric’s Corporate Governance Challenges: a multinational conglomerate faced financial difficulties and

governance challenges in the late 2010s, leading to a decline in its stock price and reputation. This case study emphasizes the need for effective board oversight, financial transparency, and strategic adaptability in industrial enterprises facing complex market dynamics.

These case studies serve as illuminating examples of the multifaceted challenges and opportunities faced by industrial enterprises. They underscore the profound influence of corporate governance practices on various facets of performance, reputation, and long-term sustainability. These insights prove invaluable not only for industry professionals but also for students pursuing studies in corporate governance and management. However, it is worth noting that many accountants and auditors may not be fully aware of the advanced technologies utilized in their client solutions. There exists a realm of corporate governance software tools designed to enhance board administration, making it more potent and streamlined than ever before. These tools facilitate tasks such as scheduling and preparing for board meetings, managing board communications, and ensuring board compliance.

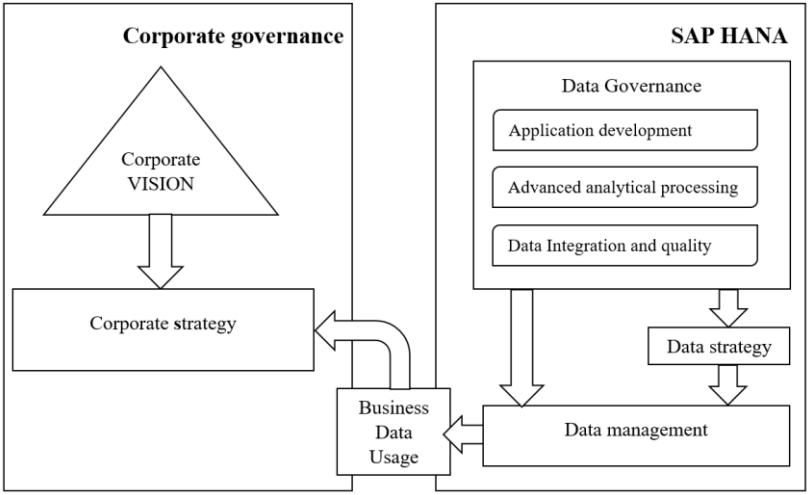
In my humble opinion, the implementation of HANA systems within enterprises plays a pivotal role in establishing robust information systems capable of generating a substantial flow of data. In alignment with the principles of corporate governance, HANA systems can bear relevance to the overall governance framework. Drawing upon data from listed European industrial companies that have implemented ERP systems, notable trends emerge. For instance, companies with a relatively lower proportion of independent directors display a heightened inclination toward adopting the HANA system. Conversely, businesses characterized by a higher degree of ownership concentration among state entities are

more predisposed to implementing automatic accounting systems. Similarly, non-state-owned industrial firms with lesser degrees of ownership concentration tend to exhibit a greater willingness to adopt such systems. State-owned industrial companies, in comparison to their non-state-owned counterparts, display a greater propensity for system adoption. Corporate governance's foundation lies in the corporate vision, which is fortified through the establishment of a corporate strategy. This strategy serves as the linchpin for coordinating the data essential for informed decision-making. Particularly within industrial enterprises, a strategic approach can be employed to bolster the effectiveness of corporate governance by segregating data management and business data utilization. This approach ensures a seamless connection between the corporate vision, strategy, and data utilization, further enhancing the governance framework's efficacy. This relationship can be schematically described as follows (Figure 10).

Corporate governance in Azerbaijan's industrial sector is still in its early stages but has a legal foundation. It's crucial to consider the unique characteristics of our country's enterprises and study the best practices and lessons learned. Previously, investors prioritized competitiveness and financial health, but now, the corporate governance index has gained prominence. Therefore, industrial enterprises seeking investments should prioritize improving their corporate governance systems, rooted in performance indicators and information resources. Utilizing multi-model databases as an information foundation in rapidly integrating economies becomes essential. This helps boost the international competitiveness of local firms, transition from import-dependent to export-oriented, and enhance the country's investment appeal. This information relationship, depicted

schematically through research, requires ongoing oversight in all its phases to establish a modern corporate management system.

Figure 10. Corporate governance and SAP HANA relationship



Corporate governance is vital in industrial enterprises because it enhances decision-making, manages risks, builds trust with stakeholders, ensures legal compliance, improves efficiency, and contributes to the long-term sustainability and success of the business. If we systematize the mentioned considering the economic environment of Azerbaijan, corporate governance is crucial in industrial enterprises for eight reasons:

1. Effective Decision-Making: It ensures that decision-making processes within the organization are transparent and accountable. This leads to better decisions affecting the company's profitability, efficiency, and long-term sustainability.

2. Risk Management: A robust corporate governance system helps identify and manage operational, financial, and strategic risks. This is especially important in industrial enterprises, where safety, environmental, and regulatory compliance risks can be significant.

3. Shareholder Confidence: Good corporate governance practices instil confidence in shareholders and investors. When they trust that their interests are protected and that the company is well managed, they are more likely to invest capital, which is essential for industrial enterprises' growth and expansion.

4. Legal Compliance: It ensures that the company adheres to all relevant laws and regulations, which is critical for industrial enterprises due to the potentially severe consequences of regulatory violations, including fines and legal actions.

5. Efficiency and Productivity: Effective governance can increase operational efficiency and productivity. Clear roles, responsibilities, and accountability structures help employees understand their tasks and work together more effectively.

6. Transparency: Corporate governance promotes transparency in financial reporting and operations, which is essential for building trust with stakeholders, including customers and suppliers.

7. Access to Capital: Companies with strong corporate governance practices often find it easier to access capital through loans or investments. Lenders and investors are more willing to provide funds to well-governed enterprises.

8. Long-Term Sustainability: By focusing on the long-term interests of the company, corporate governance helps industrial enterprises plan, invest in research and development, and adapt to changing market conditions.

PATH 5. TO LEVERAGE CONSULTING SERVICE

This chapter delves into the realm of consulting services and their crucial role in facilitating successful business transformation. Within this framework, the eight primary purposes of management consulting are uncovered, providing insight into how consultants guide organizations toward enhanced efficiency, growth, and profitability. A pivotal concept discussed is establishing a strategic partnership between businesses undergoing transformation and Management Consultants. Furthermore, the vital role of consulting expertise in driving successful ERP implementation is underscored.

5.1. Development trends of consulting services in Azerbaijan

In the ever-evolving modern economy, driven by dynamic forces, both individuals and companies with aspirations to deliver exceptional value to consumers find themselves in a perpetual race to outpace their counterparts. This compels them to consistently birth novel products, services, and economic models while refining the existing ones. With this perspective, it's evident that most enterprises direct their efforts toward harnessing the abundant opportunities within the information technology market, particularly in automating accounting processes. The rationale behind this endeavour is clear: a well-established accounting system profoundly influences an enterprise's life cycle and revenue trajectory. In the pursuit of attaining remarkable revenue

heights, the establishment of a robust and efficient accounting system assumes paramount significance. This drive for efficiency extends to infusing innovation into the accounting system itself. Given that innovation is now deeply woven into every facet of production, the present market demands the infusion of automation at every operational juncture.

Forming an economic environment adequate to the modern market is one of the main factors of its effective functioning. Its most important element - the market infrastructure - is an interconnected system of enterprises and organizations serving the movement of flows of goods, services, money, securities, labor and providing a significant acceleration of their turnover.

Currently, consulting in most developed countries acts as a separate sector of the economy, second only to the information technology market in terms of growth. While consultancy companies are highly influential players in today's business world, they were almost non-existent a century ago. Whereas understanding the industry's roots adds to the comprehension of the nature of the consulting services, the status quo shows the relevance of the consulting industry e.g., indicated by its current share of GDP in certain geographies. Furthermore, future trends – e.g., concerning the interaction and balance of power between client and consultant – are important to understand. However, it remains poorly understood even though the consulting market has been one of the fastest growing in the world over the past decade. Specific issues related to the development of the consulting services market have not been disclosed: the essence and directions of consulting, identifying opportunities for increasing demand for consulting services, organizing consulting activities in business process

automation. From this point of view, the subject of our research is relevant and economically important. Unambiguously, to use best practices in the automation of business process accountancy are the way to success and ensure the successful completion of the automation project.

On the other hand, in complex market conditions, large industrial enterprises, including small and medium-sized enterprises, prefer to make management decisions based on actual and honest information generated automatically, rather than based on feelings. That is why there is a great interest in new software, especially in ERP systems and consulting services for their implementation. Any ERP system is primarily a means of increasing the efficiency and quality of enterprise management. However, ERP systems are incomplete software products ready for use. More specifically, it is a business platform characterized by flexibility and modular construction. Thus, this platform allows adapting to the customer's specific field of activity and business, and the customer buys only the components he needs and implements them systematically. That is why I would not be wrong to say that ERP system implementation and consulting service are mutually related. Fundamental knowledge for purposefully changing any features of the system, applying methods and tools used in other enterprises of the same nature can be revealed because of the research conducted by the consulting service.

Consulting embodies a distinct service rendered by a proficient individual, armed with specialized qualifications, poised to delve into research and resolve the intricate challenges of organizations. It encapsulates a process wherein a seasoned expert within the realm of a client's field of activity channels an amalgamation of specialized knowledge, competencies, and experience. This interaction

culminates in a nuanced presentation of insights tailored to the client's unique context.

Functioning as an intellectual pursuit, consulting engages in meticulous analysis. It is centred on exploring scientific, technical, and organizational innovations, positioning them against the research landscape backdrop and the client's specific predicaments.

At its core, consulting emerges as a guiding light for top-tier management, navigating them through the intricate labyrinth of corporate intricacies. Its mission resonates to nurture enduring success within an organization's undertakings. The esteemed McKinsey & Company, a prominent multinational consulting firm that has played a pivotal role in shaping the very essence of management consulting, articulated a notably comprehensive definition of this discipline.

The consulting services market in Azerbaijan has charted a unique course, reflecting the multifaceted dynamics of the contemporary market economy. Following the shift towards a market-oriented economy and the consequent complexities of corporate decision-making, agricultural managers have emerged as a significant source of demand for management consulting. In recent decades, the Azerbaijani consulting market has experienced a substantial influx of foreign consultants, driven by the global appetite to explore the opportunities within the Azerbaijani market. Concurrently, nations with stable economies seek consulting services, further fuelling this trend. However, integrating foreign consulting firms into the Azerbaijani market has not been without its challenges. The socio-political and economic intricacies, coupled with socio-psychological factors and disparities in organizational culture, have posed substantial hurdles. Language barriers create significant difficulties for

foreign consultants. Consulting firms seek employees with analytical, creative, and strong communication skills, along with the ability to work internationally and adapt to different locations. Employers also require skills for digital transformation and big data projects, including proficiency with relevant tools. From the potential employees' perspective, there are several points making jobs in consulting attractive, but also several downsides. In empirical study, K.Nada, L.Eddy [83] have summarized five main points, which consultants have mentioned that make their job attractive:

- Lack of routine and boredom;
- Contact with clients
- Contribution to organisational welfare
- Intellectual challenge, and
- Transfer of knowledge clients / consultants.

Adding to these points, Baaij lists number reasons for young professionals to join a consultancy [93]:

- Steep learning curve
- Superior earnings compared to most other sectors
- Offering faster career opportunities
- Profession with high status
- Consultants perceived as powerful.

Career opportunities do not only refer to options within the consulting company but also outside. This is due to active outplacement done by many consultancies and the demand for ex-consultants for management positions in other industries as pointed out above.

Unfortunately, there have been notable shortcomings in the endeavours of Western consultants in Azerbaijan. Frequently, they have overlooked the distinctive intricacies of the Azerbaijani context, inadvertently sidelining local

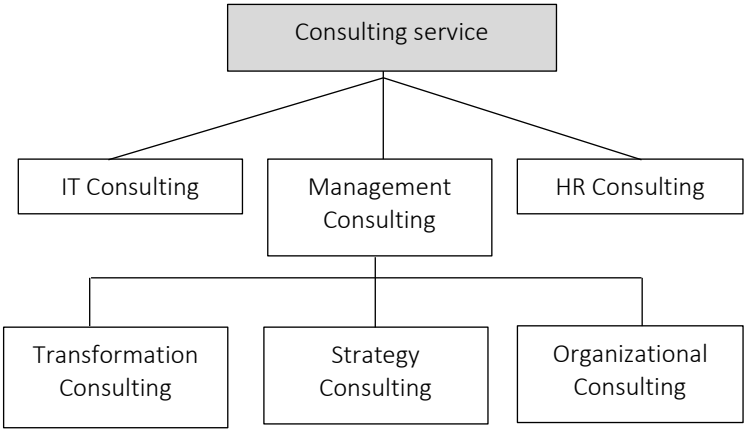
complexities. Their comprehension of the challenges faced by indigenous enterprises has often proven inadequate. Moreover, certain foreign consulting firms have inadvertently regarded the Azerbaijani firms they served as mere training grounds for their personnel, diminishing the value they could provide. This narrow perspective directed their focus predominantly towards larger enterprises, often resulting in excessively high fees that marginalized smaller players. A substantial influx of foreign consulting experts characterizes the present state of Azerbaijan's consulting market. This phenomenon is closely linked to the global market's pursuit of exploring Azerbaijan's potential and the evident demand for consulting services in economies characterized by stability. Remarkably, prominent international consulting firms enjoy a distinctive advantage, as they frequently operate without domestic competition.

A noteworthy consequence of the scarcity of local management consulting expertise has been a shift in the strategy employed by Western consulting firms to establish themselves in the local market. Typically, these firms pursue market entry by merging with significant local entities. After a preparatory period, they assimilate these entities into their global network. This adaptive approach exemplifies the extent to which consulting firms are navigating the intricate landscape of Azerbaijan's consulting market. In this context, this work concentrates on the middle ground in the graph depicted below. However, it is essential to note that consulting projects often encompass elements of two or more types of consulting (e.g., strategic and organizational advice within a single project), which is why some scholars caution that strict distinctions "would be artificial and largely meaningless."

Management consulting has held interest since its early inception, dating back to the establishment of the first management-consulting firm in 1886. From then to the present, this practice has evolved and matured into one of the most sought-after industries worldwide. After World War II, this practice transcended the boundaries of the United States, spreading into Europe. The paramount role of management consultants lies in objectively analysing situations, highlighting the challenges and opportunities they present, and subsequently providing solutions to leverage these challenges and opportunities to the best advantage of their clients. All information is meticulously processed, analysed, and presented, with the ultimate aim of furnishing an optimal solution and strategic plan for the organization. This discussion focuses on incorporated consulting companies rather than independent contractors and, in alignment with the definitions above, external service providers rather than internal consulting units. The literature offers several different classifications of consulting services. Arguably, the most typical classifications are similar to the grouping offered by Fink [85], as depicted below (Figure 11).

Transformation management consulting refers to a specialized field of consulting services that focus on helping organizations navigate significant changes, transformations, or transitions within their operations, strategies, or structures. It can include digitalization efforts, mergers and acquisitions, process improvements, cultural shifts, etc. Transformation consultants work shoulder to shoulder with clients to help change their companies' trajectories - no matter where they are on their transformation journey.

Figure 11. Classifications of consulting services



Strategy consulting is a type of management consulting that specializes in helping organizations develop and implement effective strategies to achieve their long-term goals and competitive advantages. Strategy consultants work closely with clients to analyse their position, market dynamics, and business environment. Organizational consulting focuses on enhancing the overall effectiveness and efficiency of an organization's structure, processes, culture, and people. They work to optimize how an organization operates and functions.

5.2. Hierarchy of consulting process

Management consultancy is a knowledge-intensive service which independent business professionals provide to managers of organizations, and which consists of objective advice on management's decisions regarding the solutions to the client organization's problems and opportunities, and may, in some cases, also consist of assistance with the management's tasks regarding the implementation of these solutions by Baaij [93, p.36] The management consulting industry in the USA contributes significantly to business growth, innovation, and economic development. By helping organizations solve complex challenges and capitalize on opportunities, consultants contribute to increased efficiency, job creation, and overall economic vitality. The industry is evolving due to technological advancements and the increasing demand for digital solutions. Statistics show that management consultants receive more than two billion USD annually in the United States. Much of this money pays for impractical data and poorly implemented recommendations.

In the contemporary landscape, consulting services have crystallized into pivotal support systems for industrial enterprises, steering them through complex challenges and accelerating their growth trajectories. These multifaceted services encompass an array of vital directions that cater to the evolving needs of modern businesses. At the forefront lies strategic management consulting, an indispensable avenue that assists enterprises in envisioning their long-term goals, devising viable strategies, and aligning their operations with overarching objectives. Financial consulting emerges as another cornerstone, guiding enterprises through intricate financial landscapes, optimizing resource allocation, and

ensuring sustainable fiscal health. Process optimization and efficiency consulting also leverages cutting-edge methodologies to streamline workflows, enhance productivity, and extract maximum value from operational processes. The burgeoning sphere of technology consulting is pivotal in harnessing digital tools, integrating systems, and driving digital transformation, thereby enhancing competitiveness in an increasingly tech-driven landscape. On the other hand, environmental and sustainability consulting underscores the contemporary imperative of responsible business practices by guiding enterprises in minimizing ecological footprints and embracing sustainable strategies. Through these diverse directions, consulting services empower industrial enterprises to navigate complexities, innovate, and thrive in the dynamic currents of the modern business ecosystem. As a result of systematic approach and analytical generalization it is clear that to reduce this waste, clients need a better understanding of what consulting assignments can accomplish. They need to ask more from such advisers, who must learn to satisfy expanded expectations. Consultants now provide expertise in data analytics, artificial intelligence, cybersecurity, and digital strategy (Table 7). Management consulting includes a broad range of activities, and the many firms and their members often define these practices quite differently. One way to categorize the activities is in terms of the professional's area of expertise (such as competitive analysis, corporate strategy, operations management, or human resources). However, in practice, as many differences exist within these categories as between them.

Table 7. Key aspect of Consulting

Key aspect:	Detail elucidation of aspects:
Diverse Expertise:	Management consultants offer expertise in various areas, including strategy, operations, finance, human resources, technology, etc. They leverage their deep industry knowledge to provide tailored solutions.
Strategy Development:	Consultants assist organizations in developing comprehensive strategic plans that align with their business objectives and market realities. This includes market analysis, competitive assessments, and growth strategies.
Operational Improvement:	Consultants identify inefficiencies in processes and operations and recommend strategies for streamlining workflows, reducing costs, and optimizing resource utilization.
Digital Transformation:	In an increasingly digital landscape, consultants guide organizations through technology adoption, digital transformation, and data-driven decision-making to stay competitive.
Change Management:	Consultants help organizations navigate change, whether it's implementing new technologies, restructuring, or adapting to shifts in the market. They design change management strategies to ensure successful transitions.

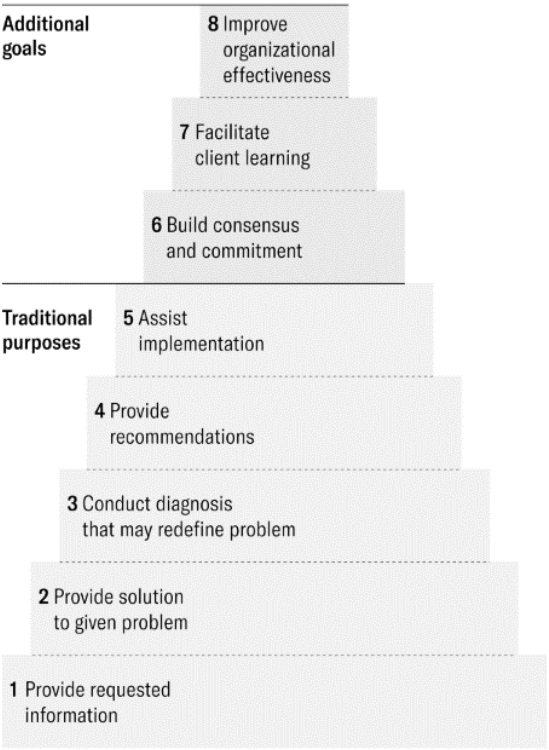
Mergers and Acquisitions:	Consultants provide support in M&A transactions, conducting due diligence, assessing potential synergies, and guiding post-merger integration.
Risk Management:	Consultants assist in identifying and mitigating risks, ensuring compliance with regulations, and establishing risk management frameworks.
Talent Development:	Human resources consultants offer insights into talent acquisition, development, and retention strategies, contributing to building strong organizational cultures.

Another approach is to view the process as a sequence of phases: entry, contracting, diagnosis, data collection, feedback, implementation, etc. These phases are usually less discrete than most consultants admit. Perhaps a more useful way of analysing the process is to consider its purposes; clarity about goals certainly influences an engagement's success. Consulting's eight fundamental objectives are arranged hierarchically (Figure 12).

The lower-numbered purposes are better understood and practiced and more requested by clients. Many consultants aspire to a higher stage on the pyramid than most engagements achieve. Purposes 1 through 5 are considered legitimate functions, though some controversy surrounds purpose 5. Management consultants are less likely to address purposes 6 through 8 explicitly, and their clients are not as likely to request them. But leading firms and their clients are beginning to approach lower-numbered purposes in ways that also involve other goals. Goals 6 through 8 are best considered by-products of earlier purposes, not

additional objectives that become relevant only when the other purposes have been achieved. They are essential to effective consulting even if not recognized as explicit goals when the engagement begins.

Figure 12. Purposes of management consulting



Moving up the pyramid toward more ambitious purposes requires increasing sophistication and skill in consulting and managing the consultant-client relationship. Sometimes a professional try to shift the purpose of an engagement even though a shift is not called for; the firm may have lost track

of the line between what is best for the client and what's best for the consultant's business. However, reputable consultants do not usually try to prolong engagements or enlarge their scope. Wherever on the pyramid the relationship starts, the outsider's first job is to address the purpose the client requests. As the need arises, both parties may agree to move to other goals. Let's examining each of the mentioned purposes separately and giving comments:

1. Provide requested Information: Perhaps the most common reason for seeking assistance is to obtain information. Compiling it may involve attitude surveys, cost studies, feasibility studies, market surveys, or analyses of the competitive structure of an industry or business. The company may want a consultant's special expertise or the more accurate, up-to-date information the firm can provide. Another side, the company may be unable to spare the time and resources to develop the data internally. Often information is all a client wants. However, the information a client needs sometimes differs from what the consultant is asked to furnish.

2. Provide solution to given problem: Managers often give consultants difficult problems to solve. For example, a client might wish to know whether to make or buy a component, acquire or divest a line of business, or change a marketing strategy. Alternatively, management may ask how to restructure the organization to adapt more readily to change; which financial policies to adopt; or what the most practical solution is for a problem in compensation, morale, efficiency, internal communication, control, management succession, or whatever. Seeking solutions to problems of this sort is certainly a legitimate function. However, the

consultant also has a professional responsibility to ask whether the problem as posed is what most needs solving. Very often, the client needs help most in defining the real issue; some authorities argue that executives who can accurately determine the roots of their troubles do not need management consultants at all. Thus, the consultant's first job is to explore the context of the problem. To do so, he or she might ask: Which solutions have been attempted in the past, with what results? What untried steps toward a solution does the client have in mind? Which related aspects of the client's business are not going well? How will the solution be applied if the problem is "solved"? What can be done to ensure that the solution wins wide acceptance?

A management consultant should neither reject nor accept the client's initial description too readily. Suppose the problem is presented as low morale and poor performance in the hourly work force. The consultant who buys this definition on faith might spend much time studying symptoms without uncovering causes. On the other hand, a consultant who too quickly rejects this way of describing the problem will end a potentially useful consulting process before it begins. When possible, the wiser course is to structure a proposal focusing on the client's stated concern at one level. At the same time, it explores related factors—sometimes sensitive subjects the client is well aware of but has difficulty discussing with an outsider. As the two parties work together, the problem may be redefined. The question may switch from, "Why do we have poor hourly attitudes and performance?" to "Why do we have a poor process-scheduling system and low levels of trust within the management team?"

Thus, a useful consulting process involves working with the problem as defined by the client so that more-useful definitions emerge naturally as the engagement proceeds.

Since most clients—like people in general—are ambivalent about their need for help with their most important problems, the consultant must skilfully respond to the client's implicit needs. Client managers should understand a consultant's need to explore a problem before setting out to solve it. They should realize that the definition of the most important problem might well shift as the study proceeds. Even the most impatient client is likely to agree that neither a solution to the wrong problem nor a solution that will not be implemented is helpful.

3. Conduct effective diagnosis: Much of management consultants' value lies in their expertise as diagnosticians. Nevertheless, the process by which an accurate diagnosis is formed sometimes strains the consultant-client relationship, since managers often fear uncovering difficult situations for which they might be blamed. Competent diagnosis requires more than an examination of the external environment, the technology and economics of the business, and the behaviour of nonmanagerial members of the organization. The consultant must also ask why executives made certain choices that now appear to be mistakes or ignored certain factors that now seem important.

Although the need for independent diagnosis is often cited as a reason for using outsiders, drawing members of the client organization into the diagnostic process makes good sense. One consultant explains:

We usually insist that client team members be assigned to the project. They, not us, must do the detail work. We'll help, we'll push—but they'll do it. While this is going on, we talk with the CEO every day for an hour or two about the issues that are surfacing, and we meet with the chairman once a week.

In this way, we diagnose strategic problems in connection with organizational issues. We get some sense of the skills of the key people—what they can do and how they work. When we emerge with strategic and organizational recommendations, they are usually well accepted because they have been thoroughly tested.

When clients participate in the diagnostic process, they are more likely to acknowledge their role in problems and to accept a redefinition of the consultant's task. Top firms, therefore, establish such mechanisms as joint consultant-client task forces to work on data analysis and other parts of the diagnostic process.

4. Recommending Actions: The engagement characteristically concludes with a written report or oral presentation summarizing what the consultant has learned and recommending what the client should do in detail. Firms devote much effort to designing their reports so that the information and analysis are clearly presented and the recommendations are convincingly related to the diagnosis on which they are based. Many people would probably say that the purpose of the engagement is fulfilled when the professional presents a consistent, logical action plan of steps designed to improve the diagnosed problem. The consultant recommends, and the client decides whether and how to implement.

Though it may sound like a sensible division of labor, this setup is in many ways simplistic and unsatisfactory. Untold numbers of seemingly convincing reports, submitted at great expense, have no real impact because—due to constraints outside the consultant's assumed bailiwick—the relationship stops at the formulation of theoretically sound recommendations that can't be implemented. Almost all the

managers I interviewed about their experiences as clients complained about impractical recommendations. And consultants frequently blame clients for not having enough sense to do what is needed. Unfortunately, this thinking may lead the client to look for another candidate to play the game with again. In the most successful relationships, there is no rigid distinction between roles; formal recommendations should contain no surprises if the client helps develop them and the consultant is concerned with their implementation.

5. Implementing Changes: The consultant's proper role in implementation is a matter of considerable debate in the profession. Some argue that one who helps put recommendations into effect takes on the manager role, thus exceeding consulting's legitimate bounds. Others believe that those who regard implementation solely as the client's responsibility lack a professional attitude, since recommendations that aren't implemented (or are implemented badly) are a waste of money and time. Moreover, just as the client may participate in diagnosis without diminishing the value of the consultant's role, the consultant may assist in implementation without usurping the manager's job in many ways.

A consultant often asks for a second engagement to help install a recommended new system. However, if the process has not been collaborative, the client may reject a request to assist with implementation simply because it represents a sudden shift like the relationship. Effective work on implementation problems requires trust and cooperation that is developed gradually throughout the engagement.

In any successful engagement, the consultant continually strives to understand which actions, if recommended, are likely to be implemented and where people are prepared to

do things differently. Recommendations may be confined to those steps the consultant believes will be executed well. Some may think such sensitivity amounts to telling a client only what he wants to hear. Indeed, a frequent dilemma for experienced consultants is whether they should recommend what they know is right or what they know will be accepted. However, if the assignment's goals include building commitment, encouraging learning, and developing organizational effectiveness, there is little point in recommending actions that will not be taken.

Viewing implementation as a central concern influences the professional's conduct of all phases of the engagement. When a client requests information, the consultant asks how it will be used and what steps have already been taken to acquire it. Then he or she, along with members of the client organization, determines which steps the company is ready to pursue and how to launch further actions. An adviser continually builds support for the implementation phase by asking questions focused on action, repeatedly discussing progress made, and including organization members on the team. It follows that managers should be willing to experiment with new procedures during an engagement—and not wait until the end of the project before beginning to implement change. When innovations prove successful, they are institutionalized more effectively than when simply recommended without some demonstration of their value. For implementation to be truly effective, readiness and commitment to change must be developed, and client members must learn new ways of solving problems to improve organizational performance. How well these goals are achieved depends on how well both parties understand and manage the entire engagement process.

People are much more likely to use and institutionalize innovations proved successful than recommendations merely set forth on paper. Experiments with implementing procedures during a project rather than after the assignment's completion have had excellent results. Effective implementation requires consensus, commitment, new problem-solving techniques and management methods.

6. Building Consensus & Commitment: Any engagement's usefulness to an organization depends on the degree to which members reach accord on the nature of problems and opportunities and appropriate corrective actions. Otherwise, the diagnosis will not be accepted, recommendations won't be implemented, and valid data may be withheld. A consultant must be persuasive and have finely tuned analytic skills to provide sound and convincing recommendations. However, more important is the ability to design and conduct a process for (1) building an agreement about necessary steps and (2) establishing the momentum to see these steps. An observation by one consultant summarizes this well:

To me, effective consulting means convincing a client to take some action. That is the tip of the iceberg. What supports that is establishing enough agreement within the organization that the action makes sense—in other words, getting the client to move and getting enough support to succeed. To do that, a consultant needs superb problem-solving techniques and the ability to persuade the client through the logic of his analysis. In addition, enough key players must be on board, each with a stake in the solution, so that it will succeed. Therefore, the consultant needs to develop a process through which he can identify whom it is essential to involve and how to interest them.

Consultants can gauge and develop a client's readiness and commitment to change by considering the following questions:

What information does the client readily accept or resist?

What unexpressed motives might there be for seeking our assistance?

What kinds of data does this client resist supplying? Why?

How willing are members of the organization, individually and together, to work with us on solving these problems and diagnosing this situation?

How can we shape the process and influence the relationship to increase the client's readiness for corrective action?

Are these executives willing to learn new management methods and practices?

Do those at higher levels listen? Will the suggestions of people influence them lower down? If the project increases upward communication, how will top levels of management respond?

To what extent will this client consider contributing to overall organizational effectiveness and adaptability a legitimate and desirable objective?

Managers should not necessarily expect their advisers to ask these questions. However, they should expect consultants to be concerned with issues of this kind during each engagement phase.

In addition to increasing commitment through client involvement during each phase, the consultant may kindle enthusiasm with the help of an ally from the organization (not necessarily the person most responsible for the engagement). Whatever the ally's place in the organization, he or she must understand the consultant's purposes and problems. Such a sponsor can be invaluable in providing insight into the

company's functioning, new sources of information, or possible trouble spots. The role is similar to that of informant-collaborator in field research in cultural anthropology, and it is often most successful when not explicitly sought.

If conducted skilfully, interviews to gather information can simultaneously build trust and readiness to accept the need for change throughout the organization. The consultant's approach should demonstrate that the reason for the interviews is not to discover what is wrong in order to allocate blame but to encourage constructive ideas for improvement. Then members at all levels of the organization see the project as helpful, not as unwanted inquisition. By locating potential resistance or acceptance, the interviews help the consultant learn which corrective actions will work and usually reveal more sound solutions and more willingness to confront difficulty than upper management had expected. Moreover, they may show that potential resisters have valid data and viewpoints. Wise consultants learn that "resistance" often indicates sources of critical and otherwise unobtainable insight.

The relationship with the principal client is significant in developing consensus and commitment. From the beginning, an effective relationship becomes a collaborative search for acceptable answers to the client's concerns. Ideally, each meeting involves two-way reporting on what has been done since the last contact and discussing what both parties should do next. In this way a process of mutual influence develops, with natural shifts in agenda and focus as the project continues. Although I have somewhat exaggerated the possible level of collaboration, I am convinced that effective management consulting is difficult unless the relationship moves farther in a collaborative direction than most clients expect. Successful consulting is expensive not only because

good consultants' fees are high but also because senior managers should be involved throughout the process.

7. Facilitating Client Learning: Management consultants like to leave behind something of lasting value. This means enhancing clients' ability to deal with immediate issues and helping them learn the methods needed to cope with future challenges. This does not imply that effective professionals work themselves out of a job. Satisfied clients will recommend them to others and will invite them back the next time there is a need.

Consultants facilitate learning by including members of the organization in the assignment's processes. For example, demonstrating an appropriate technique or recommending a relevant book often accomplishes more than quietly performing a needed analysis. When the task requires a method outside the professional's area of expertise, he or she may recommend other consultants or educational programs. However, some members of management may need to acquire complex skills that they can learn only through guided experience over time.

Strong client involvement in the entire process will provide many opportunities to help members identify learning needs. Often a consultant can suggest or support design opportunities for learning about work-planning methods, task force assignments, goal-setting processes, etc. Though the effective professional is concerned with executive learning throughout the engagement, it may be wise not to cite this as an explicit goal. Managers may not like the idea of being "taught to manage." Too much talk about client learning comes across as presumptuous—and it is.

Learning during projects is a two-way street. In every engagement, consultants should learn how to design and

conduct projects effectively. Moreover, the professional's willingness to learn can be contagious. In the best relationships, each party explores the experience with the other to learn more from it.

8. Organizational Effectiveness: Sometimes successful implementation requires not only new management concepts and techniques but also different attitudes regarding management functions and prerogatives or even changes in how the organization's primary purpose is defined and carried out. The term organizational effectiveness is used to imply the ability to adapt future strategy and behaviour to environmental change and to optimize the contribution of the organization's human resources. Consultants who include this purpose in their practice contribute to top management's most important task—maintaining the organization's future viability in a changing world. This may seem too vast a goal for many engagements. However, just as a physician who tries to improve the functioning of one organ may contribute to the health of the whole organism, the professional is concerned with the company as a whole even when the immediate assignment is limited.

Many projects produce change in one aspect of an organization's functioning that does not last or that proves counterproductive because it does not mesh with other aspects of the system. If lower-level employees in one department assume new responsibilities, friction may result in another department. A new marketing strategy that makes great sense because of environmental changes might flounder because of its unforeseen impact on production and scheduling. Because such repercussions are likely, clients should recognize that unless recommendations consider the

entire picture, they might be impossible to implement or create future difficulties elsewhere in the company.

Promoting overall effectiveness is part of each step. While listening to a client's concerns about one department, the consultant should relate them to what's happening elsewhere. While working on current issues, he or she should also think about future needs. The consultant should also consider other possible barriers when absorbing managers' explanations of why progress is complex. In these ways, the professional contributes to overall effectiveness by addressing immediate issues with sensitivity to their larger contexts. Clients should not automatically assume that consultants who raise broader questions only try to snare more work for themselves. After all, looking at how the client's immediate concern fits into the whole picture is the professional's responsibility.

Significant change in utilization of human resources seldom happens just because an adviser recommends it. Professionals can have more influence through the methods they demonstrate in conducting the consulting process. For example, suppose consultants believe that parts of an organization need to communicate better. In that case, they can consistently solicit others' thoughts on what's being discussed or suggest project task forces of people from different levels or departments. When a manager discovers that an adviser's secret weapon in solving some problem was not sophisticated analysis but simply (and skilfully) asking the people most closely involved for their suggestions, the manager learns the value of better upward communication. The best professionals encourage clients to improve organizational effectiveness not by writing reports or recommending books on the subject but by modelling methods of motivation that work well.

Consultants are not crusaders bent on reforming management styles and assumptions. Nevertheless, a professional diagnosis should include assessment of overall organizational effectiveness, and the consulting process should help lower whatever barriers to improvement are discovered. Good advisers are practitioners, not preachers, but their practices are consistent with their beliefs. When the consulting process stimulates experiments with more effective management methods, it can contribute most to management practice. Increasing consensus, commitment, learning, and future effectiveness are not proposed as substitutes for the more customary purposes of management consulting but as desirable outcomes of any effective consulting process. The extent to which they can be built into methods of achieving more-traditional goals depends on the understanding and skill with which the consulting relationship is managed. Such purposes have received more attention in organization development literature and the writings of behavioural consultants than in management consulting. (For recommended reading in these fields, see the sidebar "Selected Readings.") Nevertheless, behavioural objectives can best be achieved when integrated with more-traditional approaches. In addition, clients have a right to expect that all management consultants, whatever their specialty, are sensitive to human relationships and processes and skilled in improving the organization's ability to solve future and present problems.

The idea that consulting success depends solely on analytic expertise and an ability to present convincing reports is losing ground, partly because there are now more people within organizations with the required analytical techniques than in the boom years of "strategy consulting." Increasingly, the best management consultants define their objective as

not just recommending solutions but also helping institutionalize more-effective management processes.

This trend is significant to consulting firms because it requires process skills that need more emphasis in firms' recruitment and staff development policies. It is equally significant to managers who need not just expert advice but also practical help in improving the organization's future performance. As managers understand the broader range of purposes excellent consulting can help achieve, they will select consultants more wisely and expect more of value from them. And as clients learn how to express new needs, good consultants know how to address them.

5.3. Strategic partnership: Management consultants and business transformation

Effective management consulting involves collaborating closely with clients, using customized strategies tailored to the organization's needs and circumstances. Consultants excel in clear communication, data analysis, and adapting to changing situations. They maintain ethical standards, uphold confidentiality, and promote diverse perspectives. But in many cases, consulting projects are designed to teach the client organization 'best practices', i.e. performing certain tasks the way the best-in-class players carry them out. Again, while this can be highly beneficial for the client, "management consultants may erode the competitive advantage" of the leading companies in this industry. Whereas codes of conduct of many consulting companies prohibit the transfer of such information between client firms, there is the risk that an individual consultant who has worked on a project for a given client may continue his or her career at a competitor of this client in the same industry. The focus is on tangible results, such as financial gains and increased efficiency, with a goal of empowering clients for long-term success. Consultants build partnerships, staying updated on industry trends and offering innovative solutions. They navigate conflicts, consider cultural sensitivities, and reframe problems to uncover more profound issues. In the ever-evolving business landscape, organizations face many challenges that can hinder growth and profitability. Amidst these challenges, the role of management consultants emerges as a transformative force that has the potential to drive enterprises towards enhanced profitability.

Within the realm of business, success is intertwined with adaptability and the ability to make informed decisions. With specialized knowledge and objective perspectives, management consultants act as strategic partners who offer insights beyond the organization's internal viewpoints. By collaborating closely with enterprises, consultants leverage their expertise to navigate complex scenarios, identify untapped opportunities, and address inefficiencies that could hamper profitability.

The inherent value of management consultants lies in their recommendations and holistic approach to problem solving. These professionals understand an organization's dynamics, from processes and operations to company culture and goals. This thorough comprehension enables them to design tailor-made strategies that align with the enterprise's unique circumstances. Effective communication is a hallmark of successful consulting engagements. Management consultants excel in distilling intricate concepts into understandable terms, fostering alignment between stakeholders and facilitating the adoption of recommended changes. This communication prowess extends to collaboration with employees at all levels, promoting buy-in and minimizing resistance to transformative initiatives.

Data-driven decision-making is a cornerstone of modern business success, and management consultants wield this principle adeptly. By meticulously analysing data, consultants identify trends, patterns, and areas of improvement that might otherwise remain obscured. This evidence-based approach not only substantiates recommendations but also ensures that strategies are aligned with organizational goals and potential financial gains. Ethical standards and confidentiality form the bedrock of consulting engagements. Consultants operate with integrity, safeguarding sensitive

information and maintaining a professional code of conduct. This level of trust is integral to forging productive relationships with enterprises seeking to maximize profits.

Beyond insights and recommendations, the impact of management consultants extends to implementation and sustainability. Consultants guide organizations through change management, offering strategies for smooth transitions and empowering internal teams to maintain the improvements beyond the consulting engagement.

Hiring management consultants ultimately invests in an organization's profitability and long-term growth. By tapping into their expertise, enterprises gain a competitive edge, capitalize on unexplored opportunities, and optimize their operations. As a result, the collaboration between enterprises and management consultants becomes a strategic partnership that propels businesses towards increased profitability and sustainable success.

In the intricate landscape of ERP implementation decision, a pivotal role is assigned to consultants who specialize in designing business processes. This chapter underscores the significance of consultants in shaping business processes during ERP implementation, emphasizing how their expertise can navigate complexities and ensure seamless integration of ERP systems into organizational workflows.

5.4. Driving successful ERP implementation with consulting expertise

The intricacies of designing business processes within an ERP implementation constitute a multifaceted endeavour, demanding a comprehensive approach. As previously highlighted, ERP systems represent high-complexity solutions seamlessly integrating various facets, processes, and business functions. Consequently, ERP consultants play a pivotal role in successfully implementing and customizing these sophisticated software systems. Because, in the backdrop of this transformative potential lies myriad challenges, complexities, and intricate dynamics. Achieving the envisioned benefits of ERP implementation demands a strategic and coordinated effort. ERP systems represent substantial investments for organizations. These investments involve the capital required for software acquisition and the significant allocation of human resources, time, and effort. In this light, the efficient and effective deployment of ERP systems can yield substantial returns on investment, streamline operations, and enhance competitiveness. ERP implementation often involves data integration, a critical aspect in the modern economic landscape. Consultants are crucial in designing interfaces that facilitate seamless data exchange across disparate systems. This integration ensures that accurate and relevant information flows effortlessly, supporting real-time decision-making and enhancing overall project visibility.

Consulting firms, positioned as third-party experts, are strategically equipped to provide invaluable assistance

throughout the ERP implementation journey. They significantly influence the process and outcome by offering an array of services. These services encompass conducting meticulous information requirements analysis, proposing tailored solutions to clients, aligning organizational procedures with the system's modular architecture, aiding in system configuration, and providing specialized knowledge of the software. Furthermore, consultants are instrumental in guiding system design, formulating project plans, and delivering managerial insights into business reengineering during the ERP installation phase.

In an economic context, the role of ERP consultants extends beyond technical prowess. They are expected to demonstrate mastery of technical communication skills, exhibit strong language proficiency, possess in-depth technological expertise, and wield formidable business analytical capabilities while maintaining an acute awareness of the underlying processes. Consultants are integral in examining a company's culture and assessing employee reactions to the transition, akin to their involvement in change management initiatives. Despite the undeniable advantages of ERP systems, including enhanced business processes and a unified enterprise-wide transaction framework, both parties must grapple with the complexities arising from differing perspectives.

It is essential to recognize that ERP system implementation transcends the mere deployment of hardware and software. It necessitates a holistic consideration of several critical elements. It is crucial to underscore that the success of ERP deployment is contingent on the collaborative efforts and alignment of objectives between consulting experts and the organizations they serve. This symbiotic relationship forms the cornerstone of a

prosperous ERP implementation, where economic gains are realized through streamlined processes, improved data management, and enhanced decision-making capabilities.

Therefore, organizations must forge a strong partnership with ERP consultants to harness the full potential of these transformative systems and drive sustainable economic growth. The literature highlights numerous factors that can pose challenges during the implementation of ERP systems. ERP systems were originally developed to address the issue of information fragmentation in large organizations by centralizing all business operations within a standardized system environment. This consolidation aims to enhance disseminating crucial information to users and improve data consistency.

Additionally, ERP systems leverage database technology to manage and unify all company-related information, involving various employees from different business units, including internal IT specialists. These employees must collaborate closely with external stakeholders such as vendors and consultants. [86]. This large scale of integration makes ERP implementation a highly complex and interdepend (Sharma & Yetton, 2003; White, Anderson, Schroeder, & Tupy, 1982). There are many published reports about the high failure rate in ERP implementations. However, no consensus has been reached on the measures to define the success of ERP system implementation. The literature describes different measures of ERP implementation success: (1) end-user computer satisfaction, (2) intended business performance improvements, (3) implementation on time, (4) implementation within budget and (5) system acceptance and use.

In my opinion, system acceptance and use is not an appropriate criterion to measure the success of ERP

implementation, because the use of the system is mandatory or required. Whether the quality of the system itself and the information outputs are satisfying or not, and whether the users want to use the system, there is no choice for the user; users have to accept and use the system. We also consider the time and cost criteria inappropriate to measure implementation success, since even if ERP system implementation exceeds contracted delivery time and budget, firms may still regard their ERP implementation as successful. Finally, company performance is a general assessment that may be influenced by many other internal and external factors. User satisfaction is the best surrogate measure of implementation success [87]. End-user computing satisfaction is defined as the extent to which users believe that the IS available to them meets their information requirements.

Delone and Mclean [88] identified three reasons to justify the choice of end-user satisfaction as a widely used measure of IS success: high degree of face validity, development of reliable tools to measure with, and conceptual weakness and unavailability of other measures.

Somers, Nelson, Karimi [89] shows that the EUCS instrument maybe used to evaluate ERP systems inorganizations. An increasing number of researchers are now considering user satisfaction as a valid measure of ERP implementation success. Based on these experiences, I also consider user satisfaction as the best measure of ERP implementation success. A better understanding of the factors that may influence user satisfaction should be reached for ERP systems to be used effectively. Interorganizational ERP projects involve stakeholders, each contributing unique perspectives, objectives, and processes. However, this diversity can often lead to communication challenges that

hinder the project's progress. Consultants leverage their expertise to break down communication barriers, fostering seamless information exchange among diverse entities. Their initial step involves a comprehensive understanding of the organizational landscape, delving into cultural nuances, language, operational methods, and expectations. This deep comprehension helps identify potential communication challenges and develop strategies to overcome them. In my opinion, a key strength of consultants lies in their adaptability. They continuously assess communication strategies, accommodating changing dynamics and unforeseen challenges, while keeping all stakeholders informed and engaged.

Consultants to ensure alignment among project participants introduce structured communication frameworks. They establish communication protocols, reporting mechanisms, and designate focal points for each organization, minimizing misunderstandings, reducing information gaps, and promoting collaboration. In interorganizational ERP projects, data integration is pivotal, and consultants design interfaces for seamless data exchange. This integration ensures accurate and relevant information flow, supporting real-time decision-making and enhancing project visibility. Effective communication extends to cultural sensitivity, with consultants facilitating cross-organizational workshops to foster understanding and rapport among diverse teams, enabling open dialogue and cohesive teamwork. Consultants excel in translating technical jargon into understandable language, bridging the gap between technical experts and non-technical stakeholders. They also mediate in conflicts, facilitating constructive discussions and resolutions when divergent viewpoints arise.

Throughout the project lifecycle, consultants maintain open communication lines, provide regular updates, facilitate cross-functional meetings, and address concerns promptly. They adapt communication strategies as needed, accommodating changing dynamics and unforeseen challenges while keeping stakeholders informed and engaged. Consulting services are essential in overcoming communication barriers in interorganizational ERP projects. Their ability to understand diverse organizational landscapes, introduce structured communication frameworks, facilitate data integration, and promote cultural sensitivity ensures a cohesive project environment. The collaboration between consultants and project participants drives effective communication, streamlined workflows, and successful interorganizational ERP implementations.

5.5. Leveraging consulting services for talent development

Consulting services and talent development are closely intertwined. Consulting firms bring expertise, offering guidance, assessment, and tailored solutions for talent development. They enhance efficiency and cost-effectiveness while aiding in change management. Additionally, they provide a global perspective and support continuous improvement. Together, consulting services and talent development drive organizational growth and competitiveness. Investing in talent development is crucial for ensuring future success. It cultivates a skilled and motivated workforce, driving innovation and productivity. Companies that prioritize talent development gain a competitive edge and adapt more effectively to changing markets. Ultimately, fostering employee growth leads to long-term prosperity and organizational sustainability. Investing in talent development is an investment in the future. It's a commitment to building a resilient and adaptive workforce capable of tackling unforeseen challenges. When employees feel valued and empowered, they become loyal ambassadors for the company, driving its success. Moreover, by reducing turnover and the associated recruitment costs, organizations can allocate resources more efficiently. In the rapidly evolving landscape of modern business, the relationship between consulting and talent development has become increasingly vital.

At the heart of this imperative lies the recognition that an organization's greatest asset is its human capital. The skills, knowledge, and creativity of its employees are the driving

force behind innovation, productivity, and competitiveness. Consequently, nurturing and developing this talent is paramount for an organization's sustained growth and relevance.

Management consulting firms, with their wealth of expertise and external perspective, play a pivotal role in guiding organizations toward effective talent development. They provide valuable insights into identifying skill gaps, industry trends, and best practices. Here is why the synchronization of consulting and talent development is both timely and imperative:

1. Rapid Technological Advancements: In an era characterized by constant technological disruption, staying ahead of the curve is essential. Management consultants can offer insights into the skills and competencies that will be in demand as industries evolve. They help organizations align their talent development strategies with these emerging needs.

2. Talent Retention and Attraction: With the labor market becoming more competitive, talented employees have options. Effective talent development programs, guided by consulting expertise, are essential for retaining top performers and attracting new talent. This is particularly relevant in industries where specialized skills are scarce.

3. Leveraging Data and Analytics: The advent of big data and analytics has opened new possibilities in talent management. Consulting firms can assist in leveraging data-driven insights to make informed decisions about talent development, from recruitment to performance evaluation.

4. Agility in a Dynamic Business Environment: The pace of change in today's business environment is relentless. Organizations must be agile and ready to pivot in response to market shifts. Consultants can assist in creating agile talent

development strategies that foster a culture of continuous learning and adaptability.

5. Strategic Alignment: Often, companies struggle to align their talent development efforts with their overall business strategy. Management consultants help bridge this gap by ensuring that talent development initiatives are directly linked to the organization's strategic objectives.

6. Globalization and Diverse Workforces: As businesses expand globally, the workforce becomes increasingly diverse in terms of culture, skills, and backgrounds. Consulting services can guide organizations in developing inclusive talent management practices that harness this diversity for innovation and competitive advantage.

7. Future-Proofing Organizations: The global economy is marked by uncertainty, from economic downturns to unforeseen disruptions. A synchronized approach to consulting and talent development can future-proof organizations by equipping them with resilient and adaptable workforces.

The synchronization of consulting and talent development has become a timely imperative for organizations striving to thrive in today's complex and ever-changing business landscape. This approach leverages external expertise to create agile, inclusive, and data-driven talent development strategies. By doing so, organizations can unlock the full potential of their workforce, drive innovation, and secure their position in the competitive marketplace. In this era of rapid change, those embracing this imperative are better equipped to navigate the future confidently and succeed. In our opinion, it is appropriate to consider the examples of companies that have made significant investments in talent development. Google is known for its commitment to employee development. The company offers

a wide range of training and development programs, including Google University, where employees can take courses on various subjects, both technical and non-technical. Google also provides opportunities for employees to work on innovative projects and encourages a culture of learning and exploration. This investment in talent development has contributed to Google's reputation as a top employer and its continued success in the tech industry.

A common problem with global talent management systems is that they come to depend on “whom you know.” In large global organizations, the sheer volume of talent movement combined with the reality that employees and leaders are already extremely busy, means that development opportunities or opportunities to move from one country to another are not visible to everyone who might be interested. Leaders do their best, but in practice, who learns of opportunities and who takes them often depend. In this perspective, IBM has a long history of investing in talent development that program called the "IBM Power Skills Academy," which provides employees with access to a vast library of online courses and training resources. IBM Power Skills Academy is a comprehensive initiative by IBM aimed at addressing the growing demand for technology skills in the digital age. It is part of IBM's commitment to fostering a skilled and adaptable workforce, not only within its organization but also within the larger IT industry. IBM also encourages employees to earn digital badges and certifications to demonstrate their expertise in various areas [95]. This commitment to continuous learning and skill development has allowed IBM to adapt to changing technologies and market demands. In my opinion, IBM invests in talent development to stay competitive in the fast-evolving tech industry, foster innovation, retain top talent, meet

diverse customer needs, and demonstrate industry leadership. It's a strategic move to ensure a skilled and adaptable workforce that can navigate the uncertainties of the business landscape. In one of the interesting cases, it is the correct strategy of the McKinsey & Company consulting company. As a leading management consulting firm, McKinsey invests heavily in talent development. The firm provides comprehensive training for its consultants, including formal training programs and on-the-job learning opportunities. McKinsey also supports career development through mentoring and coaching, helping consultants build a broad skill set and deep industry expertise.

Above mentioned how investing in talent development can have a significant impact on an organization's success and competitiveness. By providing employees with the tools, resources, and opportunities to learn and grow, these companies have not only attracted top talent but also fostered a culture of continuous improvement and innovation. Consulting services and talent development share a symbiotic relationship within the business world. Consulting services often play a crucial role in enhancing talent development efforts within organizations. Therefore, consulting firms typically have specialized knowledge and experience in various aspects of business, including talent development. They can provide expert guidance on designing and implementing effective talent development programs. This expertise helps organizations create strategies tailored to their specific needs and industry trends. Consultants can conduct assessments and analyses of an organization's current talent pool and development practices. This includes identifying skill gaps, assessing employee performance, and evaluating existing training programs. These insights form the basis for targeted talent development initiatives. In addition,

consulting services can customize talent development solutions to align with an organization's goals and challenges. They design training modules, coaching programs, and mentoring initiatives that address specific skill deficiencies and help employees reach their full potential. Consulting services often provide cost-effective solutions by streamlining talent development processes. They can recommend efficient ways to allocate resources and prioritize development efforts, ensuring that organizations get the most value from their investments. Talent development often involves organizational change, such as introducing new learning technologies or altering performance evaluation methods. Consultants can help manage these transitions by providing change management strategies and ensuring a smooth implementation process.

In today's globalized business environment, consulting firms can offer insights into international talent development trends and best practices. This is especially valuable for companies operating in multiple countries, helping them develop a consistent approach to talent development across borders. Talent development is an ongoing process. Consultants can assist in monitoring the effectiveness of development initiatives and making necessary adjustments. They help organizations stay adaptable and responsive to evolving workforce needs. Consulting services and talent development go hand in hand. Consultants bring a wealth of knowledge and experience to help organizations identify, nurture, and empower their talent, ultimately contributing to improved performance, competitiveness and long-term success.

SUMMARY

Discover the transformative journey ahead as you delve into the enlightening pages of "Five Paths to Prosperity: Transforming Business Processes". This insightful volume is a roadmap to excellence in the intricate world of modern business, specifically tailored to the unique landscape of modern industrial enterprises. Each of the five paths illuminated within this book offers a distinct avenue to prosperity, underpinned by a fusion of conceptual insights, real-world application, and in-depth research. From the inception of automation and the strategic deployment of ERP systems to the intricate realm of e-procurement, the establishment of controlling systems, and the profound impact of management consulting services, these paths serve as the cornerstones of success. The book highlights how these strategies interweave, complement, and amplify each other, offering a multifaceted approach to business enhancement.

Path 1 delved into the art of automating business processes, unveiling the significance of streamlining operations and the classification of business processes themselves. As we navigated this chapter, you gained a profound understanding of how automation shaped the core of industrial enterprises, propelling them toward efficiency and effectiveness.

The research continued with Path 2, where ERP system implementation took centre stage. In this chapter, the trends shaping last millennium's approach to ERP systems were dissected, along with a deep dive into SAP - the industry's frontrunner. We have unlocked the secrets of SAP project

management methodologies, strategies and crucial implementation steps, armed with the knowledge of factors that led to HANA implementation success.

Path 3 unveiled the transformation of procurement processes, introducing e-procurement as a pivotal component of modern business environments. From its significance to integration with ERP systems and futuristic trends, you understood the metamorphosis of procurement in today's industrial landscape.

Path 4 invited you to understand the intricate world of controlling systems. Through a lens of theoretical knowledge, you dove into the essence and governance of controlling systems, focusing on self-controlling mechanisms.

Finally, in Path 5, the spotlight fell on leveraging consulting services. We have delved into the development trends of consulting services in Azerbaijan, grasping the hierarchical intricacies of the consulting process, as well as we have investigated the symbiotic relationship between ERP implementation and consulting, where strategic guidance met technological evolution.

With every chapter, this book exemplifies the fusion of knowledge and practice. Real-world case studies enrich each path, shedding light on difficulties, steps, advantages, and disadvantages that pave the way to prosperity. As embarking on the journey with us, our readers gain scientific-practical knowledge about the possibilities of transformation in industrial enterprises based on economic knowledge and scientific research.

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Ph.D. Togrul Polukhov, born on January 12, 1985, embarked on his academic journey in the realm of higher education. From 2001 to 2005, he pursued a bachelor's degree within the domain of "Engineering Economy and Management" at the Azerbaijan State Oil and Industry University.

Subsequently, 2005-2007, he pursued advanced studies at the same institution, culminating in the attainment of a master's degree, marked by an exceptional academic performance. In 2011, Togrul Polukhov achieved the prestigious DIPFR diploma of Association of Chartered Certified Accountants, focusing on International Financial Reporting Standards. His academic pursuit continued at The George Washington University, under the auspices of the BHOS, where he successfully obtained a master's degree in Project Management in 2019.

Togrul Polukhov embarked on his professional journey in 2006 at the "Oil gas construction" trust, where he held various roles encompassing the domains of economics, engineering, and deputy leadership within the Procurement and supply department until 2010. Since 2010, he has been an integral part of the SOCAR Head Office. Presently, he assumes the role of Deputy head in the "ERP systems coordination and

analytical reports department". His significant contributions include active involvement in the automation of the accounting system at SOCAR and pivotal contributions to the successful execution of numerous projects related to the implementation of the SAP ERP system.

In 2020 year, Togrul Polukhov was awarded an Honorary Decree for my special services in the development of the Azerbaijan oil and gas industry by the management of SOCAR.

In 2014, Togrul Polukhov defended his thesis, titled "Organizational-Methodical Aspects of the Formation of an Effective Controlling System in Oil and Gas Extraction Enterprises," which culminated in the conferral of the esteemed title of Doctor of Philosophy in Economics. Furthermore, his academic dedication extends to the pedagogical sphere, where he imparts knowledge in subjects such as Managerial Accounting, Idea and Innovation Projects, Innovation Management, Logistics, and Supply Chain Management at UNEC.

Togrul Polukhov has established himself as a prolific scholar, authoring more than 20 scholarly articles and contributing to scientific foundations in Azerbaijani, Russian, and English languages. His articles have been published in prestigious journals, both in Azerbaijan and abroad. In 2016, his monograph, titled "Controlling in Oil and Gas Extraction Industry Enterprises," was published, further solidifying his standing in the academic community.

He is married. He has two children.

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This book is a roadmap for modern industrial enterprises, offering five distinct paths to success: business process automation, ERP systems, e-procurement, controlling systems and consulting services. Each path combines conceptual insights, real-world application, and in-depth research, creating a multifaceted approach to business enhancement. Throughout the book, real-world case studies provide insights into the challenges and advantages of these paths. Join us on this journey to gain scientific-practical knowledge for transforming industrial enterprises based on economic insights and research.