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ИНОСТРАННЫЙ ЯЗЫК
МЕНЕДЖМЕНТ
ПРОИЗВОДСТВЕННЫЙ МЕНЕДЖМЕНТ
OPERATIONS MANAGEMENT ENGLISH

*Методические указания к самостоятельной работе
для студентов бакалавриата направления подготовки 38.03.02*

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Методические указания предназначены для студентов направления подготовки 38.03.02 «Менеджмент». Материал, представленный в данных методических указаниях, направлен на формирование у студентов навыков работы со словарем, чтения и перевода специальной литературы на английском языке. Тематика текстов и задания к ним способствуют накоплению словарного запаса, включающего в себя основные английские термины по профилю «Производственный менеджмент», а также термины менеджмента горного предприятия.

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ВВЕДЕНИЕ

Данные методические указания предназначены для студентов направления подготовки 38.03.02 «Менеджмент» (профиль «Производственный менеджмент»). Основной целью методических указаний является формирование у студентов навыков работы со словарем, чтения и перевода профессиональной литературы на английском языке.

Методические указания состоят из двух разделов. Первый раздел содержит тексты, описывающие основы производственного менеджмента. Второй раздел посвящен специфике производственного менеджмента в горной отрасли. Тексты сопровождаются заданиями, нацеленными на формирование у студентов словарного запаса по профилю «Производственный менеджмент», и глоссарием.

Студентам рекомендуется работать с текстами в том порядке, в котором они представлены в методических указаниях, поскольку для введения лексических единиц используется последовательный принцип. Если студент желает ознакомиться с отдельными текстами или разделами, для лучшего освоения материала целесообразным будет выполнить лексические задания, сопровождающие предыдущие тексты.

PART 1. OPERATIONS MANAGEMENT

Text 1. Operations Management: An Introduction

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Asset utilization, capacity, competitive advantage, current costs, customer service, data flow, equipment, excess inventory, financial management, flexibility, flow process, goods, human resource management, industrial process, manufacturing industry, operations management, paperwork, process design, product design, production management, quality, raw material, responsibility, schedule, scope, supervision, timely delivery, workforce.

Task 2. Read the text and translate it into Russian.

Operations management, which is also called production management, deals with planning and control of industrial processes to ensure that they move smoothly at the required level. Techniques of operations management are employed in service as well as in manufacturing industries. It is a responsibility similar in level and scope to other specialties such as marketing or human resource and financial management. In manufacturing operations, operations management includes responsibility for product and process design, planning and control issues involving capacity and quality, and organization and supervision of the workforce.

Operations management's responsibilities are summarized by the "five M's": men, machines, methods, materials, and money. "Men" refers to the human element in operating systems. Since the vast majority of manufacturing personnel work in the physical production of goods, "people management" is one of the operations manager's most important responsibilities.

The operations manager must also choose the machines and methods of the company, first selecting the equipment and technology to be used in the manufacture of the product or service and then planning and controlling the methods and procedures for their use. The flexibility of the production process and the ability of workers to adapt to equipment

and schedules are important issues in this phase of operations management.

The operations manager's responsibility for materials includes the management of flow processes—both physical (raw materials) and information (paperwork). The smoothness of resource movement and data flow is determined largely by the fundamental choices made in the design of the product and in the process to be used.

The manager's concern for money is explained by the importance of financing and asset utilization to most manufacturing organizations. A manager who allows excess inventories to build up or who achieves level production and steady operation by sacrificing good customer service and timely delivery runs the risk that overinvestment or high current costs will wipe out any temporary competitive advantage that might have been obtained.

(2162 знака с пробелами)

Text 2. Operations in the Organization

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Customer dissatisfaction, demand, excess capacity, excess supply, final product, investment proposal, lost opportunity, operations function, retail store, supply, supply chain.

Task 2. Read the text and translate it into Russian.

Operations is that part of a business organization that is responsible for producing goods and/or services.

▪ **Goods** are physical items that include raw materials, parts, subassemblies such as motherboards that go into computers, and final products such as cell phones and automobiles.

▪ **Services** are activities that provide some combination of time, location, form, or psychological value.

Examples of goods and services are found all around you. Every book you read, every video you watch, every e-mail or text message you send, every telephone conversation you have, and every medical treatment you receive involves the operations function of one or more organizations. So does everything you wear, eat, travel in, sit on, and

access the Internet with. The operations function in business can also be viewed from a more far-reaching perspective: the collective success or failure of companies' operations functions has an impact on the ability of a nation to compete with other nations, and on the nation's economy.

The ideal situation for a business organization is to achieve an economic match of supply and demand. Having excess supply or excess capacity is wasteful and costly; having too little means lost opportunity and possible customer dissatisfaction. The key functions on the supply side are operations and supply chains, and sales and marketing on the demand side.

While the operations function is responsible for producing products and/or delivering services, it needs the support and input from other areas of the organization. Business organizations have three basic functional areas: finance, marketing, and operations. It doesn't matter whether the business is a retail store, a hospital, a manufacturing firm, a car wash, or some other type of business; all business organizations have these three basic functions.

- **Finance** is responsible for securing financial resources at favourable prices and allocating those resources throughout the organization, as well as budgeting, analyzing investment proposals, and providing funds for operations.

- **Marketing** is responsible for assessing consumer wants and needs, and selling and promoting the organization's goods or services.

- **Operations** is responsible for producing the goods or providing the services offered by the organization.

To put this into perspective, if a business organization were a car, operations would be its engine. And just as the engine is the core of what a car does, in a business organization, operations is the core of what the organization does. Operations management is responsible for managing that core. Hence operations management is the management of systems or processes that create goods and/or provide services.

(2704 знака с пробелами)

Text 3. Supply Chains

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Distribution centre, facilities, factory, final customer, forecasting, inputs, inventory management, outputs, part, processing centre, purchasing, retail outlet, scheduling, storage facility, supplier, trucking company, warehouse.

Task 2. Read the text and translate it into Russian.

Operations and supply chains are intrinsically linked, and no business organization could exist without both. A supply chain is the sequence of organizations—their facilities, functions, and activities—that are involved in producing and delivering a product or service. The sequence begins with basic suppliers of raw materials and extends all the way to the final customer. Facilities might include warehouses, factories, processing centres, offices, distribution centres, and retail outlets. Functions and activities include forecasting, purchasing, inventory management, information management, quality assurance, scheduling, production, distribution, delivery, and customer service.

One way to think of a supply chain is that it is like a chain, as its name implies. The links of the chain would represent various production and/or service operations such as factories, storage facilities, activities, and modes of transportation (trains, railroads, ships, planes, cars, and people). The chain illustrates both the sequential nature of a supply chain and the interconnectedness of the elements of the supply chain. Each link is a customer of the previous link and a supplier to the following link. It also helps to understand that if any one of the links fails for any reason (quality or delivery issues, weather problems, or some other problem), it can interrupt the flow in the supply chain for the following portion of the chain.

Another way to think of a supply chain is as a tree with many branches. The main branches of the tree represent key suppliers and transporters (e.g., trucking companies). That view is helpful in grasping the size and complexity that often exists in supply chains.

Supply chains are both external and internal to the organization. The external parts of a supply chain provide raw materials, parts,

equipment, supplies, and/or other inputs to the organization, and they deliver outputs that are goods to the organization's customers. The internal parts of a supply chain are part of the operations function itself, supplying operations with parts and materials, performing work on products, and/or performing services.

(2150 знаков с пробелами)

Text 4. Transforming Inputs into Outputs

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Applications engineering, crude oil, facilitating services, feedback, for-profit organization, labour, machine tool manufacturer, non-profit organization, oil well, repairing, research and development, salary, smelter, technical advice, training, value added.

Task 2. Read the text and translate it into Russian.

The creation of goods or services involves transforming or converting inputs into outputs. Various inputs such as capital, labour, and information are used to create goods or services using one or more transformation processes (e.g., storing, transporting, repairing). To ensure that the desired outputs are obtained, an organization takes measurements at various points in the transformation process (feedback) and then compares them with previously established standards to determine whether corrective action is needed (control). Figure 1 depicts the conversion system.

The essence of the operations function is to add value during the transformation process. Value added is the term used to describe the difference between the cost of inputs and the value or price of outputs. In non-profit organizations, the value of outputs (e.g., highway construction, police and fire protection) is their value to society; the greater the value added, the greater the effectiveness of these operations. In for-profit organizations, the value of outputs is measured by the prices that customers are willing to pay for those goods or services. Firms use the money generated by value added for research and development, investment in new facilities and equipment, worker salaries, and profits. Consequently, the greater the value added, the greater the amount of

funds available for these purposes. Value can also be psychological, as in branding.

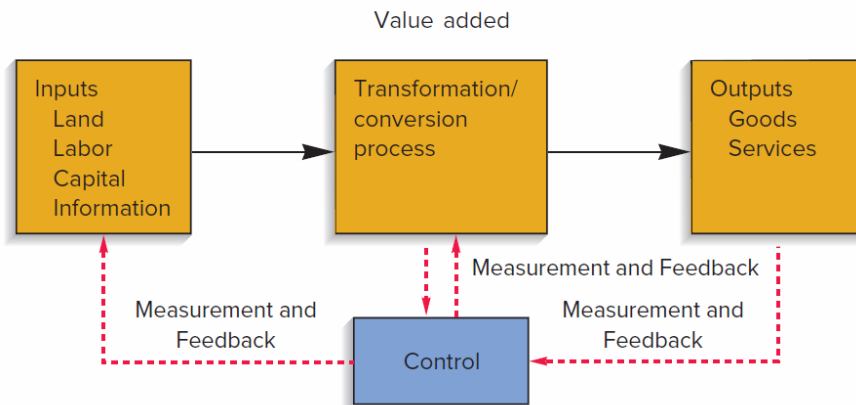


Figure 1. Conversion of inputs into outputs

Some operations produce just products and others just services, but most operations produce a mixture of the two. Crude oil producers are concerned almost exclusively with the product which comes from their oil wells. So are aluminium smelters, but they might also produce some services such as technical advice. Services produced in these circumstances are called facilitating services. To an even greater extent, machine tool manufacturers produce facilitating services such as technical advice, applications engineering, and training. The services produced by a restaurant are an essential part of what the customer is paying for. It is both a manufacturing operation which produces food and a provider of service in the advice, ambience and service of the food. An information systems provider may produce software 'products', but primarily it is providing a service to its customers, with facilitating products. Certainly, a management consultancy, although it produces reports and documents, would see itself as a service provider which uses facilitating goods. Finally, some pure services do not produce products at all. A psychotherapy clinic, for example, provides therapeutic treatment for its customers without any facilitating goods.

(2680 знаков с пробелами)

Text 5. The Activities of Operations Management

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Decision-making, environmental protection, long-term goal, performance objective, social responsibility, strategic objective, technology awareness.

Task 2. Read the text and translate it into Russian.

Operations managers have some responsibility for all the activities in the organization which contribute to the effective production of goods and services. And while the exact nature of the operations function's responsibilities will, to some extent, depend on the way the organization has chosen to define the boundaries of the function, there are some general classes of activities that apply to all types of operation.

▪ **Understanding the operation's strategic objectives.** The first responsibility of any operations management team is to understand what it is trying to achieve. This means developing a clear vision of how the operation should help the organization achieve its long-term goals. It also means translating the organization's goals into their implications for the operation's performance objectives, quality, speed, dependability, flexibility and cost.

▪ **Developing an operations strategy for the organization.** Operations management involves hundreds of minute-by-minute decisions, so it is vital that operations managers have a set of general principles which can guide decision-making towards the organization's longer-term goals. This is an operations strategy.

▪ **Designing the operation's products, services and processes.** Design is the activity of determining the physical form, shape and composition of products, services and processes. Although direct responsibility for the design of products and services might not be part of the operations function in some organizations, it is crucial to the operation's other activities.

▪ **Planning and controlling the operation.** Planning and control is the activity of deciding what the operations resources should be doing, then making sure that they really are doing it.

▪ **Improving the performance of the operation.** The continuing responsibility of all operations managers is to improve the performance of their operation.

▪ **The broad responsibilities of operations management.** Many businesses are increasingly recognizing that operations managers have a set of broad responsibilities and concerns beyond their direct activities described previously. All businesses will interpret these broader responsibilities in different ways. Five that are of particular relevance to operations managers are the effects of globalization, the pressures for environmental protection, the increasing relevance of social responsibility, the need for technology awareness, and how knowledge management is becoming an important part of operations management.

(2500 знаков с пробелами)

Text 6. Operations Today

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

a) Nouns and noun phrases: agility, bar code, benefit, commercial application, competitiveness, data transmission, e-commerce, electronic data processing, e-procurement, global competition, lean production, revenue management, technological advance.

b) Verbs: assess.

Task 2. Read the text and translate it into Russian.

Advances in information technology and global competition have had a major influence on operations management. While the Internet offers great potential for business organizations, the potential as well as the risks must be clearly understood in order to determine if and how to exploit this potential. In many cases, the Internet has altered the way companies compete in the marketplace.

Electronic business, or e-business, involves the use of the Internet to transact business. E-business is changing the way business organizations interact with their customers and their suppliers. Most familiar to the general public is e-commerce, consumer-business transactions such as buying online or requesting information. However, business-to-business transactions such as e-procurement represent an

increasing share of e-business. E-business is receiving increased attention from business owners and managers in developing strategies, planning, and decision-making.

Today, operations management is primarily concerned with three kinds of technology: product and service technology, process technology, and information technology (IT). All three can have a major impact on costs, productivity, and competitiveness.

- **Product and service technology** refers to the discovery and development of new products and services. This is done mainly by researchers and engineers, who use the scientific approach to develop new knowledge and translate that into commercial applications.

- **Process technology** refers to methods, procedures, and equipment used to produce goods and provide services. They include not only processes within an organization but also supply chain processes.

- **Information technology (IT)** refers to the science and use of computers and other electronic equipment to store, process, and send information. Information technology is heavily ingrained in today's business operations. This includes electronic data processing, the use of bar codes to identify and track goods, obtaining point-of-sale information, data transmission, the Internet, e-commerce, e-mail, and more.

Management of technology is high on the list of major trends, and it promises to be high well into the future. For example, computers have had a tremendous impact on businesses in many ways, including new product and service features, process management, production planning and scheduling, data processing, and communication. Advances in materials, methods, and equipment also have had an impact on competition and productivity. Obviously there have been—and will continue to be—many benefits from technological advances. However, technological advance also places a burden on management. For example, management must keep abreast of changes and quickly assess both their benefits and risks. Predicting advances can be tricky at best, and new technologies often carry a high price tag and usually a high cost to operate or repair. And in the case of computer operating systems, as new systems are introduced, support for older versions is discontinued, making periodic upgrades necessary. Conflicting technologies can exist that make technological choices even more difficult. Technological

innovations in both products and processes will continue to change the way businesses operate, and hence require continuing attention.

Globalization and the need for global supply chains have broadened the scope of supply chain management. However, tightened border security in certain instances has slowed some movement of goods and people. Moreover, in some cases, organizations are reassessing their use of offshore outsourcing.

Competitive pressures and changing economic conditions have caused business organizations to put more emphasis on operations strategy, working with fewer resources, revenue management, process analysis and improvement, quality improvement, agility, and lean production.

(3864 знака с пробелами)

PART 2. OPERATIONS MANAGEMENT IN THE MINING INDUSTRY

Text 1. Mine Operations

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Earth, equipment utilization, excavated material, excavation, ground support, hard rock, hazardous area, maintenance, material handling, mine site, processing, repair shop, rock, rock fragmentation, safety, supporting service, waste rock.

Task 2. Read the text and translate it into Russian.

There are five main activities performed on a mine site:

- the excavation of earth and rock;
- the processing of the excavated material to separate the ore from the waste rock;
- the storage of waste material;
- the monitoring of environmental conditions such as air quality, water quality and noise levels;
- the operation of supporting services such as repair shops, labs, living quarters, warehouses and offices.

The entire mining system, including rock fragmentation, material handling, ground support, equipment utilization, and maintenance, would benefit from research and development in four key areas:

- fracture, fragmentation, and cutting, with the goal of achieving truly continuous mining in hard rock as is done with coal;
- small, inexpensive sensors and sensor systems for mechanical, chemical, and hydrological applications;
- data processing and visualization methods (especially taking advantage of advanced, parallel-computing architecture and methods) that would provide real-time feedback;
- automation and control systems (especially for mining equipment used in hazardous areas).

Mining in today's world is vastly different than in the "old days" of mining. Careful planning, execution and state-of-the-art techniques and technology are used not only to maximize mining potential, but to

ensure the safety and well-being of employees, the environment and the communities around.

(1390 знаков с пробелами)

Text 2. Optimizing Plant Performance in the Mining Sector

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

a) Nouns and noun phrases: audit, downtime, footprint, processing plant, production target, recovery rate.

b) Verbs: evaluate.

Task 2. Read the text and translate it into Russian.

When mine operators evaluate how well their plants are performing, it's important they have reliable, accurate data to compare the present to the past.

And it's not just data from one or two pieces of equipment or a process that's needed. Everything in the plant needs to be measured and analyzed together to get a clear picture of how the plant is performing as a whole. It would be like going to a doctor with a headache—it might not be obvious right away what the problem is. Most doctors will consider how your entire body is functioning and what underlying issues might be causing your headache. It's the same in a processing plant.

Like the human body, equipment wears down with use or changes in the material it's processing, which is why it's important to schedule regular audits. When technology changes, a mine can do some tests on the new technology to see whether it's adding more value to the plant than the old technology.

With a plant audit, plant managers will have information to compare the new technology against, so they can see if the benefit outweighs the cost. It gives them the data to make informed decisions that have potentially significant impacts on recovery rates.

A plant audit can provide clarity around questions a mine might have related to process and equipment improvements. But the whole process needs to be measured for a plant to improve its process, reduce its footprint, remove more waste or assess new technologies.

While some mines evaluate the performance of their plants and make improvements, there are challenges that can seem greater than the cost, such as not enough time, people or knowledge to perform an audit, or competing priorities like meeting demanding production targets.

The risk is a mine might not have all the data to know how they operated before, so they don't see the need to make changes because they don't know what they're missing. Taking the time to evaluate processes and equipment in order to identify opportunities or errors may lead to improved recovery rates, less downtime and improved decision-making.

Plant audits should be done throughout the life of a mine. They are especially important after a process has changed or new equipment is added. If operating parameters change, then a plant audit is needed to see how that has affected the recovery rate. When a plant shuts down for maintenance, this would be an ideal time to do an audit on how each process and each piece of equipment is performing.

(2475 знаков с пробелами)

Text 3. Five Effective Techniques to Improve Mine Performance

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

a) Nouns and noun phrases: actual expenditures, artificial intelligence, capital expenditures, cost management, cost savings, cut-off grade, digital twinning, exploration, machine learning, mine lifecycle, operating expenditures, profitability, run-of-mine feed, shareholder returns, shareholder value added, simulation modelling, unit of production.

b) Verbs: aim, enhance, streamline.

c) Adjectives: cost-effective.

Task 2. Read the text and translate it into Russian.

The foundation of improving performance in mining is “doing more with less” to achieve higher shareholder returns. Here’s a list of five strategies that could help mining companies enhance their productivity.

Consider digital transformation and innovation

The digital transformation and innovation of the mining sector is an imperative lever to boost productivity, cost savings, and safety advancements. Emerging technologies help miners manage their entire mine lifecycle from exploration to daily operations. Advanced tools allow for remote access, thus making the mining process fast, accurate, and cost-effective. Advanced technologies like 3D printing and mapping, automated drilling, smart sensors, digital twinning, and simulation modelling are reshaping the sector.

Improve mine planning and scheduling

The foundation of good mine planning and associated technical practices is part and parcel of a high-performance mine. A veteran planner should be hired to plan out mining activities. The plan needs to focus on increasing cut-off grades and reducing capital expenditures. Some of the typical improvement approaches in mine scheduling are reducing the variability of run-of-mine feed, improving the fragmentation and mill throughput through optimized blast sizing, etc.

Better budget and risk management

Research suggests that about 65% of mega-projects in the mining sector fail to deliver their targeted value. A better understanding of the actual expenditures, including the amount spent on every unit of production, is important for cost management.

Prioritize mining operations excellence

Mining companies aim to achieve high productivity and low costs while ensuring integrity. To reduce costs in a sustainable manner, miners need to re-examine their operating models and ensure they have the necessary reporting systems. Companies should identify operational

efficiency gaps by implementing Lean Six Sigma methodologies and financial management metrics such as shareholder value added (SVA).

Consider analytics

Recent advances in data analytics, artificial intelligence (AI), and machine learning (ML) in the mining industry have enabled miners to access data, reports, and make decisions on the go. Analytics provide metrics to monitor asset performance, overall profitability, and operating expenditures. Critical insights gained through analytics can help miners minimize the downtime, streamline processes, and optimize fleet resources.

(2447 знаков с пробелами)

Text 4. Key Performance Indicators for Mining Companies

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

a) Nouns and noun phrases: benchmark, business management software application, dashboard, key performance indicator (KPI), mineral processing, product grade, tonnage.

b) Verbs: anticipate, monitor, respond.

Task 2. Read the text and translate it into Russian.

Mining organizations are complex operations. A lot is happening both in the field and in the office, so it's sometimes difficult to stay on top of it all. How can you ensure that you're on a course of continual improvement, meeting your stated goals, and differentiating your mining organization from the others? One effective way is to establish key performance indicators (KPIs). KPIs are a set of quantifiable measures that companies can use to monitor and compare their performance to their strategic and operational goals. KPIs help establish the benchmarks you can use to continually measure and track your mining company's activities so that you can identify problem areas, anticipate potential setbacks, and respond quickly to both.

In mining and mineral processing, the three big KPIs tend to be tonnage, recovery rate, and product grade. However, even within these sectors, different companies will place different value on various

indicators. One way to select the KPIs that your company should be monitoring is to list your goals for the next year. The process of identifying and measuring KPIs forces you to look at what specific actions will drive the company towards those goals. For example, if improving job site safety and increasing equipment utilization are your goals for the coming year, you'll want to include KPIs to help you monitor and measure these.

Remember that managers are busy people, and complex KPIs can be challenging to interpret. Managers need information that is both easy to consume and available to them when and where they need it. To help them, many business management software applications offer configurable dashboards that can include a wide variety of KPIs, often in easy-to-digest graphical format. The dashboards can be customized for each manager, giving them access to the data they are responsible for, and helping them monitor that data continually.

(1900 знаков с пробелами)

Text 5. Creating an Agile Supply Chain in the Mining Industry

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

a) Nouns and noun phrases: balance sheet, financial health, fuel, overstocking, proactive adjustment, resilience, solvency risk, stockout, supplier network, supply disruption, third party, tier-one supplier, tier-two supplier, vulnerability.

b) Verbs: facilitate, mitigate, renegotiate.

Task 2. Read the text and translate it into Russian.

With sophisticated global supply chain networks, mining companies are closely aware of their reliance on third parties in widely spread jurisdictions; however, the COVID-19 pandemic truly exposed the vulnerabilities of this interdependence. As a result, mining companies are now being forced to reassess the resilience of their organization and global supply chain models.

To transform its global supply chain, a mining company can do the following:

▪ **Get granular.** Companies that gain an accurate, granular understanding of their integrated supply chains—from demand through to the production of individual component parts—could be better placed to make proactive adjustments before supply issues occur and to make informed choices about where to apply their working capital to get the greatest impact.

▪ **Illuminate the extended supply network.** Mining companies should gain as much visibility as possible into the status of their tier-two suppliers—and beyond—so they have time to work with tier-one suppliers on alternative plans and/or to proactively mitigate supply-side constraints. Companies with complex supply chains will likely benefit from digital approaches to facilitate the analysis of their supplier networks and identify risks and opportunities. Augmented intelligence and machine learning, for instance, can enable rapid modelling of complex supplier networks and deliver multitier insights.

▪ **Source strategically.** While working with multiple suppliers can help hedge risk, too many suppliers can make it harder to access key materials. By simplifying their supplier portfolio, mining companies can reduce the variability of their inventory.

▪ **Refine production schedules.** Variable supply and ongoing supply disruptions mean companies should align their production schedules to inventory availability to avoid the risk of stockouts. Traditional planning and scheduling processes and frozen periods to allow efficient production execution are unlikely to work well in this environment. Instead, companies should engage in shorter-cycle planning to identify emerging risks and respond proactively.

▪ **Stock up.** Stocking excess inventory may seem like a logical solution to potential supply disruptions, but it raises strategic questions. Who should bear the cost of storing additional inventory—the mining company or the supplier? To keep costs off their balance sheets, companies should be selective about their inventory investments. To prevent overstocking, it may make sense to use predictive technologies to forecast demand patterns so as to plan purchases more strategically.

▪ **Renegotiate.** While the costs of raw materials, such as fuel and electricity, are dropping in response to market forces, the same is not true for industrial products, such as fixed plant, equipment, labour, and

materials. To keep expenses under control, it's incumbent on mining companies to actively renegotiate their contracts to reset prices where possible.

▪ **Anticipate bankruptcies.** Sadly, not all companies will successfully navigate the current crisis. As the business environment rebounds, some direct customers and suppliers may no longer be available. Proactively assessing customer and supplier financial health—both independently and through regular dialogue—can help identify challenges and potential solvency risks within the supply network.

(3344 знака с пробелами)

Text 6. Integrated Operations as a Trend in the Mining Industry

Task 1. Translate the following words and phrases into Russian using the glossary on page 24.

Breakout room, closed-loop system, integrated operations, open-plan design, performance target, role accountability, value chain, workplace design.

Task 2. Read the text and translate it into Russian.

The rapid pace of technological advancement in the mining industry in the 2010s has provided a significant increase in the amount of information available to support decision-making. This trend is expected to accelerate over time. To capitalize, more and more companies are driving toward integrated operations. The obvious benefit is that it's easier to manage a single system.

Successfully integrating operations will likely require a focus on the four key pillars that drive sustainable change: technology, process, workplace design, and people and culture.

Pillar 1: Technology

As part of the digital journey toward organizational integration, companies need to understand the effort required to clean up their data, upgrade their technology infrastructure, and integrate data across the value chain. This includes consideration of their information technology or operational technology (IT/OT) and network requirements, as well as their advanced analytics capabilities.

Pillar 2: Process

Process is about developing an appropriate operations strategy supported by effective operating models. The aim is to integrate operations and governance by bringing planning and execution together in a closed-loop system. To do so, mining companies should develop effective rhythms and routines, procedures and standards, as well as process KPIs and performance targets.

Pillar 3: Workplace design

Workplace design considers where the work should be executed by looking at things such as facility location and design, workplace design, floor design, and ergonomics. In purposefully designing their integrated operating centres, mining companies should consider ways to encourage multidisciplinary collaboration. An open-plan design, for instance, enables ad hoc interactions and can maximize the use of technology by giving teams access to the tools they need to effectively execute their work. Similarly, flexible workspaces, such as breakout rooms and quiet zones, can accommodate different work styles. The objective is to design workplaces that foster interaction, communication, and knowledge-sharing between individuals and across functions.

Pillar 4: People and culture

Even when organizations get their technology, processes, and workplace design right, their integrated operations initiatives can fail if they do not adopt an appropriate leadership and team culture. This generally means giving due consideration to issues such as decision rights, and role accountabilities.

To ensure people are responsible, accountable, supported, consulted, and informed, some processes may have to change as network connectivity becomes ubiquitous across the mine. Perhaps mining companies will need to provide supervisors with access to information in the field and empower them to respond to deviations from plan without returning to the office. Or maybe they'll need to give workers down the line the authority to use this information to make operational decisions. The bottom line is that it's not enough to simply provide people with

greater access to information. Mining companies must also help their people understand how they're expected to use that information.

(3151 знак с пробелами)

GLOSSARY

Слово / словосочетание	Перевод
actual expenditures	фактические затраты
agility	быстрая адаптация
aim	стремиться; ставить своей целью
anticipate	предвидеть
applications engineering	разработка инженерных решений для конкретных задач
artificial intelligence	искусственный интеллект
assess	оценивать
asset utilization	использование активов
audit	проверка
balance sheet	балансовый отчет
bar code	штриховой код
benchmark	ориентир
benefit	преимущество, выгода
breakout room	переговорная комната
business management software application	программа для управления бизнесом
capacity	производственная мощность; производительность
capital expenditures	капитальные затраты
closed-loop system	замкнутая система
commercial application	использование в коммерческих целях
competitive advantage	конкурентное преимущество
competitiveness	конкурентоспособность
cost management	управление затратами
cost savings	снижение издержек; сокращение затрат
cost-effective	экономичный; рентабельный
crude oil	сырая нефть
current costs	текущие расходы; текущие издержки
customer dissatisfaction	неудовлетворенность клиентов
customer service	обслуживание клиентов
cut-off grade	бортовое содержание полезного компонента
dashboard	панель индикаторов
data flow	поток данных
data transmission	передача данных
decision-making	принятие решений
demand	спрос

Слово / словосочетание	Перевод
digital twinning	построение виртуального макета объекта; моделирование цифрового двойника
distribution centre	распределительный центр
downtime	время простоя оборудования
earth	почва; грунт; земля
e-commerce	электронная торговля
electronic data processing	электронная обработка данных
enhance	улучшить; повысить
environmental protection	защита окружающей среды
e-procurement	электронное снабжение
equipment	оборудование
equipment utilization	использование оборудования
evaluate	оценивать
excavated material	извлеченный грунт; извлеченная порода
excavation	выемка
excess capacity	избыточные производственные мощности
excess inventory	избыточные запасы
excess supply	избыточное предложение
exploration	разведочные работы
facilitate	упрощать
facilitating services	вспомогательные услуги
facilities	производственные мощности
factory	завод
feedback	обратная связь
final customer	конечный потребитель
final product	конечный продукт
financial health	финансовая стабильность
financial management	управление финансами; финансовый менеджмент
flexibility	гибкость
flow process	производственный процесс
footprint	воздействие на окружающую среду
forecasting	прогнозирование
for-profit organization	коммерческая организация
fuel	топливо
global competition	глобальная конкуренция
goods	товары
ground support	крепление; поддержание массива горных пород
hard rock	крепкая порода
hazardous area	опасная зона; опасный участок

Слово / словосочетание	Перевод
human resource management	управление персоналом
industrial process	производственный процесс
inputs	ресурсы
integrated operations	интегрированное производство
inventory management	управление запасами; складской учет
investment proposal	инвестиционное предложение
key performance indicator (KPI)	ключевой показатель эффективности
labour	труд
lean production	бережливое производство
long-term goal	долгосрочная цель
lost opportunity	упущенная выгода
machine learning	машинное обучение
machine tool manufacturer	производитель станков
maintenance	техническое обслуживание
manufacturing industry	промышленное производство
material handling	транспортирование материалов
mine lifecycle	жизненный цикл шахты; жизненный цикл карьера
mine site	шахта; карьер; участок добычи
mineral processing	обогащение полезных ископаемых
mitigate	смягчать; облегчать
monitor	наблюдать; следить; контролировать
non-profit organization	некоммерческая организация
oil well	нефтяная скважина
open-plan design	офис открытого типа
operating expenditures	операционные затраты
operations function	производственная функция
operations management	операционный менеджмент; производственный менеджмент
outputs	продукция
overstocking	создание чрезмерного запаса
paperwork	документы; делопроизводство; документооборот
part	деталь
performance objective	производственная цель
performance target	плановый показатель деятельности
proactive adjustment	проактивное изменение
process design	разработка процесса
processing	переработка
processing centre	центр подготовки продукции; центр переработки

Слово / словосочетание	Перевод
processing plant	обогащительная фабрика
product design	разработка продукта; конструирование изделия
product grade	сорт продукции; качество продукции
production management	производственный менеджмент
production target	производственный план
profitability	прибыльность
purchasing	закупки; снабжение
quality	качество
raw material	сырье
recovery rate	степень извлечения полезного компонента
renegotiate	пересматривать договор
repair shop	ремонтная мастерская
repairing	ремонт
research and development	научно-исследовательские и опытно-конструкторские работы
resilience	устойчивость; жизнестойкость
respond	реагировать
responsibility	обязанность; ответственность
retail outlet	магазин розничной торговли
retail store	магазин розничной торговли
revenue management	управление доходами
rock	порода
rock fragmentation	дробление породы
role accountability	подотчетность
run-of-mine feed	сырье, поступающее на обогащительную фабрику
safety	безопасность
salary	заработная плата
schedule	расписание; график; календарный план
scheduling	планирование; составление календарного плана
scope	масштаб; объем
shareholder returns	доходы акционеров
shareholder value added	акционерная добавленная стоимость
simulation modelling	имитационное моделирование
smelter	металлургическое предприятие
social responsibility	социальная ответственность
solvency risk	риск потери платежеспособности
stockout	дефицит; отсутствие запасов
storage facility	складское помещение

Слово / словосочетание	Перевод
strategic objective	стратегическая цель
streamline	оптимизировать; рационализировать
supervision	контроль; надзор
supplier	поставщик
supplier network	сеть поставщиков
supply	предложение
supply chain	цепь поставок
supply disruption	сбой поставок
supporting service	вспомогательная служба
technical advice	консультирование по техническим вопросам
technological advance	технологический прогресс
technology awareness	осведомленность в вопросах развития технологий
third party	сторонняя организация; третье лицо
tier-one supplier	поставщик первого уровня
tier-two supplier	поставщик второго уровня
timely delivery	своевременная доставка
tonnage	производительность в тоннах
training	обучение
trucking company	автотранспортное предприятие
unit of production	единица продукции
value added	добавленная стоимость
value chain	цепочка ценности
vulnerability	уязвимость; слабое место
warehouse	склад
waste rock	пустая порода
workforce	работники; рабочая сила; персонал; штат
workplace design	организация рабочего места

БИБЛИОГРАФИЧЕСКИЙ СПИСОК

1. Evolutionary and Revolutionary Technologies for Mining [Электронный ресурс]. Режим доступа: <https://www.nar.edu/catalog/10318/evolutionary-and-revolutionary-technologies-for-mining>
2. Five Effective Techniques to Improve Mine Performance [Электронный ресурс]. Режим доступа: <https://mining.workongrid.com/blog/best-strategies-mine-productivity>
3. KPI Monitoring for the Mining Industry [Электронный ресурс]. Режим доступа: <https://www.caronbusiness.com/mining-suite/kpi/>
4. Mine Operations [Электронный ресурс]. Режим доступа: <https://www.mndm.gov.on.ca/en/mines-and-minerals/mining-sequence/production/mine-operations>
5. Mining Operations [Электронный ресурс]. Режим доступа: <https://www.hailegoldmine.com/mining/mining-operations/>
6. Optimizing Plant Performance Can Help Mines Recover Commodities More Efficiently [Электронный ресурс]. Режим доступа: <https://www.src.sk.ca/blog/optimizing-plant-performance-can-help-mines-recover-commodities-more-efficiently>
7. Production Management [Электронный ресурс]. Режим доступа: <https://www.britannica.com/technology/production-management>
8. *Slack N., Chambers S., Johnston R.* Operations Management. Fifth Edition. Harlow: Pearson Education Ltd, 2007. 760 p.
9. *Stevenson W. J.* Operations Management. Thirteenth Edition. New York: McGraw-Hill Education, 2018. 928 p.
10. Tracking the 2021 Mining Industry Trends [Электронный ресурс]. Режим доступа: <https://www2.deloitte.com/us/en/insights/industry/mining-and-metals/tracking-the-trends.html>

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