Implementation of AI in the Supply Chain Department

Executive summary

- Build a secure, closed-company AI that accelerates Procurement, Purchasing, Logistics, and Warehouse work—without connecting to the outside world.

- Connect internal tools, keep data private, and boost profitability by turning company knowledge into action.

Why this matters now

- Pressure to cut costs, mitigate risk, and move faster is rising.

- AI enables proactive decisions and automation across the end-to-end supply chain—safely, at scale.

Non-negotiables for enterprise safety

- Closed environment: no external data access.

- Absolute data protection by design.

Contents

Overview of AI in Procurement

Title & Promise

- AI Advantages for the Supply Chain Department

- Build a secure, closed-company AI to boost Procurement, Purchasing, Logistics, and Warehouse

- Connect internal tools, keep data private, accelerate outcomes

Urgent Needs

- Outstanding AI for Supply Chain

- Safe, closed environment: blocked from external connections

- Do more together: augment every project end-to-end

Secure-by-Design Program

- Install an AI project that never uses external data

- Absolute data protection as a core design principle

- Business-ready, compliant, and auditable

Team Benefits

- Tailored to Procurement, Purchasing, Logistics, Warehouse

- Work smarter with context from docs, CRM, tickets, messages

- Build custom GPTs to share best practices globally

Types of Procurement AI (Overview)

- AI (umbrella): "smart" software/algorithms

- Machine Learning (ML): pattern recognition for predictions/decisions

- RPA: automates repetitive, rule-based tasks (can be AI-powered)

- NLP: understands/generates human language (chatbots, copilots)

- OCR: extracts text from images/scans (e.g., paper invoices)

Generative AI in Procurement

- Emerging use: draft RFPs/RFQs, design new processes, shortlist suppliers

- Early stage, high potential for strategic acceleration

Spend Classification & Analysis

- Rapidly map line items to categories with near-perfect accuracy
- Surface saving opportunities and inform sourcing/category strategies

Global Sourcing Strategy

- ML scans global datasets to spot shifts, predict trends
- Guides make/buy,

Supplier Risk Management

- Detect sudden supplier changes, assess impact
- Monitor millions of sources for early risk alerts across the supply chain

Compliance

- Structure contracts/invoices/POs for automated checks
- Compare terms, spot duplicates, flag non-compliance

Advantages of AI in the Supply Chain Department

WHAT COMPANIES URGENTLY NEED

Outstanding AI for Supply Chain, a safe company environment, and being blocked from connecting with the outside of the company. Get more done together with AI for the Supply Chain Department (Procurement, Purchasing, Logistics, Warehouse).

Connect your company tools, keep data secure, and enhance every project your team undertakes. You need to install a project that doesn't use data from outside of your company. It is therefore safe. Need to be designed for absolute data protection.

Tailored for your team

Work smarter with your company knowledge, bringing in context from your docs, CRM, tickets, and messages. Customize AI by building your own GPTs to share best practices and collaborate more effectively company-wide on a global basis. This achieves the maximum profit growth benefit for your company.

Do complex work faster

Tackle tough projects with unlimited messages and advanced tools to analyze data, research tough topics, and take action across your tools, helping your team move from problem to solution faster.

Simple to manage

Onboard your team in minutes and scale up or down without hassle so you spend time managing work, not software. Pay one predictable bill and easily add or remove seats whenever you need. Optional credits/bonus help your power users avoid limits.

Your data stays protected

Your data stays private and protected and is only used for internal training of your AI model. Everything is encrypted, and with features like SSO and multi-factor authentication – plus support for compliance with GDPR, CCPA, and other privacy laws – you can trust it's business ready.

Types of procurement AI

AI in procurement is the use of this advanced technology to automate and enhance key procurement processes in an organization – such as contract management and strategic sourcing. Procurement teams are increasingly using AI to increase efficiency, cut costs, mitigate risks, and improve decision-making as they navigate new business demands and market challenges.

There are five main types of AI used in procurement today:

1. Artificial intelligence (AI): blanket term for any software or algorithm that can be considered "smart."

2. Machine Learning (ML): a subset of AI, machine learning algorithms can recognize patterns in data sets and use them to make decisions, forecasts, or predictions

3. Robotic process automation (RPA): algorithms that mimic human actions to perform repetitive tasks. RPA is not technically considered to be a type of AI, but it can be powered by it.

4. Natural language processing (NLP): algorithms that can understand, interpret, and generate human language—such as chatbots, copilots, and virtual assistants

5. Optical character recognition (OCR): algorithms that can recognize and extract text from images and scanned documents, such as paper-based invoices.

Some forward-thinking procurement teams are starting to use it to generate RFP documents, create entirely new processes, and autonomously shortlist suppliers. Generative AI in procurement is in its infancy, but its potential is enormous.

AI in procurement use cases

Procurement is under intense pressure to deliver cost savings, mitigate risk, improve sustainability, and play a more strategic role in the business. To meet these goals, and keep up with the rapid pace of change, teams need to be incredibly agile—and to become more proactive, and less reactive, in everything they do.

AI is helping in some key areas of procurement:

- Δ Spend classification and analysis: Spend classification algorithms can rapidly search through line items and highlight keywords to tie to spend categories with near-perfect accuracy. AI-powered spend analysis can also help teams proactively identify opportunities for cost savings and form the basis for better sourcing, category, and spend management strategies.
- Δ Global sourcing strategy: By analyzing large global datasets, machine learning algorithms can identify shifts in supply trends, predict future developments, and help inform global sourcing strategies.
- Δ Guided buying: AI-assisted item recommendations bring together procurement policies to make it simple for users to find what they're looking for, encourage spending within the company's catalog to avoid unnecessary costs, and let the procurement department offer tailored help. It also provides quick access to preferred suppliers while incorporating helpful guardrails.
- Δ Intelligent sourcing and supplier management: AI-powered software can analyze supplier databases, market trends, historical data, ESG reports, and other factors to recommend the best suppliers for specific needs. It can also provide comprehensive insight into a company's supply base, helping to improve supplier performance and advance strategic priorities.
- Δ RFX creation: AI can automatically generate requests for proposals (RFPs), request for quotations (RFQs), and other RF documents— from developing supplier lists to draft key questions.
- Δ Supplier risk management: AI algorithms can rapidly detect sudden changes with a supplier or vendor and assess how that change will impact risk. They can also mine millions of different data sources to alert companies to potential risk across the supply chain.
- Δ Compliance: By using AI to structure contract, invoice, and PO data, companies can automatically compare payment terms, eliminate duplication, and identify non-compliance.
- Δ Data extraction: Natural language processing can extract data from invoices and contracts to identify risk and fraud, provide greater insight into business spending, and speed up processes end-to-end. NLP can

also capture data from external sources such as market indices, company credit ratings, social media, and publicly available information about suppliers to spot opportunities and risks.

Δ Contract lifecycle management: AI-powered tools can automatically generate first drafts of contracts, support negotiation, and flag potential risks in contract language. They can also monitor terms and conditions as well as deadlines to ensure compliance.

Δ AP automation: Intelligent robotic process automation (RPA) can eliminate manual tasks in accounts payable processes, speeding up invoice processing and approvals, improving accuracy, and ensuring compliance. Optical character recognition can read key information off paper-based invoices to improve the process and digitize documents.

Efficient usage of RPA

Meaning

RPA is a business process automation technology that uses virtual software robots, also known as digital robots or bots, to perform manual, time-consuming work or tasks.

What is a software bot?

A software bot is a computer program designed to carry out specific actions. Built to perform simple or complex activities, bots automate processes that involve repetitive tasks.

More elaborate versions of software bots simulate or interact with humans. Examples include virtual assistants such as Alexa from Amazon, Cortana from Microsoft, and Siri from Apple.

What does RPA do?

Robotic process automation technology handles a variety of activities, including:

Δ Manual and repetitive tasks: Interactions with data from multiple sources, such as Microsoft Excel, vendor portals, and other sources

Δ High-volume tasks: Process steps that must be completed time after time, for example, data migrations and approval workflows

Δ Multiple system tasks: Access to different applications, like Web apps, RP solutions, third-party software, and others. RPA adoption is growing at double-digit rates. Positioned as the fastest-growing segment of the global enterprise software market.

Why is robotic process automation important?

RPA can be used with any application in your tech stack. It handles unmodeled, "naturally grown" processes with UI-based automation – this is particularly important

when it's necessary to integrate legacy systems where APIs don't exist and direct access to the data is not available. Thus, RPA can play an essential role in the digital transformation of a company.

Often a substitute for manual processes, RPA minimizes keying errors, speeds up work, and cuts costs. It frees employees from mundane, repetitive tasks and leverages their human skills. By consigning lower-value work to RPA bots, the company becomes more efficient, allowing it to:

- Δ Increase productivity
- Δ Automate workflows
- Δ Eliminate human error
- Δ Lower labor costs
- Δ Manage compliance risk
- Δ Improve business agility
- Δ Increase process transparency

All these outcomes contribute to the business's success, helping to improve performance and reduce costs. Additional benefits include the following:

Improved customer experience

RPA protects and even improves customer experience. With such amazing scalability (an RPA software bot can work 24/7, 365 days a year), service levels remain constant, even during times of exceptional demand and peak volumes. This permits human workers to focus on tasks that require higher-value customer interactions that can't be automated.

IT efficiencies

RPA supports the automation of processes that involve legacy systems. Technology interacts with these systems via existing graphical user interfaces (GUIs) versus API integration, presenting meaningful cost savings for IT and preventing the need to modernize underlying architecture and systems.

Given the low-code/no-code properties offered by some RPA tools, business users can automate processes themselves with no reliance on IT. It also simplifies employee training, with most role-based manual workflows handled by the software bot.

Operational efficiencies

Since RPA doesn't rely on custom software or deep integrations, the technology is easier and faster to implement for greater affordability. For example, in Switzerland, authorities in the cantons of Aargau and Zurich implemented RPA in 14 days, replacing manual

processes and averting the threat of a backlog of compensation payments for reduced working hours during the pandemic[1].

How does RPA work?

RPA runs on a PC, desktop, or server like other software programs. Technology builds, deploys, and manages software robots that interact with in-house applications, websites, user portals, and other apps, emulating a human's actions while carrying out the same task.

In essence, with RPA, the (human) user records the sequence of actions and interactions with applications to build the workflow. The system develops the action list by watching humans perform the task, and then it builds a software bot that performs the task within the application's GUI.

The software bots are programmed to understand what's on a screen, enter appropriate keystrokes, navigate in different systems, identify and extract data, and perform other defined actions. RPA bots do all this more accurately and faster than humans.

Types of RPA models

There are two different types of RPA models:

1. Unattended RPA: Software bots do the work without any human involvement. Instead, they interact directly with computer systems, running through a process or task from beginning to end.

2. Attended RPA: Also known as robotic desktop automation, these software bots work with humans focusing on set tasks within more complex workloads or processes that can't be fully automated.

RPA acts as a workaround for the integration of legacy systems. Since RPA operates via the GUI, there is no need for developers to build APIs to connect systems. Instead, the software bot will jump from application to application as a human user would.

A unique attribute of some RPA tools is their accessibility to non-programmers, enabling domain experts without programming skills to build and implement RPA workflows. Known as a citizen developer, this person has no coding experience but is the domain expert for the work activity that is undergoing automation.

Although this attribute democratizes RPA, more advanced scenarios still require proper programming knowledge, especially relative to security and ongoing maintenance of the system. Ideally, the process is a good marriage between citizens and software developers, with domain experts building the RPA workflow and then handing it off to the

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[1] Source SAP

software developer to ensure that best practices and safety requirements are incorporated.

Robotic process automation today

Since its inception, RPA has evolved beyond simple task automation. Intelligent RPA augments existing capabilities with artificial intelligence (AI) and machine learning technologies. These advances allow RPA to automate work activities that are more cognitive (knowledge- and judgment-based).

Who uses RPA?

RPA delivers value across all industries and functions. Within an organization, all business groups benefit from RPA. Here are some specific examples across departments:

Finance

RPA wants to increase productivity by automating finance processes such as sales order entry. Incorporating RPA created efficiencies across the finance team, including a 60% automation rate in sales order processing.

Human resources

An RPA tool expedites the generation of employment offer letters. The bot produces letters 15 times faster than the average person. New hires receive their offers quickly, and recruiters have more time to recruit.

Operations

optimize productivity by making its processes as efficient as possible, reducing time spent on repetitive tasks. The manufacturer implemented RPA and AI technologies to create digital assistants to carry out simple automated tasks in accounts and customer service.

Customer service

With a vast network of customers and clients, companies are able to provide better support with the next-generation ordering process. After implementing RPA, the company is processing orders 24/7, keeping up with demand, and using automation to clear a backlog of more than 10,000 IT and system-related cases that would have required the equivalent of three full-time employees.

Implementing a robotic process automation strategy

A well-planned automation initiative starts with a top-down assessment of existing workflows. Intelligent RPA, coupled with business process intelligence tools, helps to quickly identify those business processes that would benefit most from automation.

Once the best process candidates are identified, RPA provides prebuilt bots to expedite readiness. As a cloud-based platform, it also supports ongoing bot performance and scalability.

The initiative requires a technology platform that extends beyond the automation of a single process. The system must be capable of supporting the process end-to-end, identifying automation opportunities, building the necessary software bots, and managing hundreds – if not thousands – of automated workflows.

Generally, RPA performs best with activities that have clear rules and procedures, e.g., workflow automation management systems. However, intelligent RPA works more deeply, automating work activities that are also knowledge- and judgment-based using AI and machine learning capabilities.

How to use AI in procurement.

Here are some best practices for successfully integrating AI into your procurement processes:

Step 1: Define clear goals.

From cost-savings to greater efficiency and better decision-making, having clear goals will help guide your implementation strategy.

Step 2: Start with a small pilot project.

Trying to transform all your procurement processes at once is a recipe for disaster. Find simple, straightforward use cases, such as automating your existing sourcing event process, to start. This way, you can assess the effectiveness of your AI solutions in a controlled environment, identify any challenges, and adjust before scaling up.

Step 3: Ensure data quality and volume. Capture as much relevant data as you can—and clean and prepare it to make sure it's high-quality, consistent, and complete—before feeding it into AI models. Addressing data issues upfront is key to the success of AI. Garbage is in, garbage is out, as they say.

Step 4: Bring in key stakeholders.

Collaborate with fellow procurement professionals as well as finance and IT teams early in the process and assign an executive sponsor as a stakeholder. This step is crucial for building an understanding of key needs, ensuring alignment with business goals, and securing buy-in.

Step 5: Integrate with existing systems.

To minimize disruption and maximize the benefits of AI, it's critical to integrate AI solutions with existing procurement systems, ERP, and other enterprise applications.

Step 6: Provide training and change management.

Help procurement professionals become familiar with AI tools—and encourage user adoption—by providing training and demonstrating how AI can help with their daily tasks. Implement a robust change management strategy and show how your procurement team's expertise can be augmented—and not replaced—by AI technology.

Step 7: Keep it ethical and secure.

Regularly audit AI models and monitor with human oversight for fairness, compliance with data privacy regulations, and ethical considerations, especially bias in algorithms. Implement robust cybersecurity methods to protect sensitive data and build trust among users.

Benefits of AI in sourcing and procurement

The integration of AI in sourcing and procurement-related processes offers many benefits, including:

Δ Smarter decision-making: AI can analyze large volumes of data quickly and accurately. This data-driven approach provides procurement professionals with actionable insights into spending patterns, supplier performance, and market trends. AI-powered predictive analytics and scenario analysis can also help teams assess options, mitigate risk, and make better sourcing and spending decisions.

Δ Efficiency and automation: AI-powered automation of repetitive and time-consuming tasks —such as data entry and invoice processing— improves efficiency and frees procurement professionals to focus on more strategic work.

Δ Cost savings: With AI, organizations can improve supplier selection, negotiate better deals, and more accurately forecast demand for significant cost savings. They can also analyze spending patterns to identify and act on additional opportunities to cut costs.

Δ Risk mitigation: AI tools can proactively identify and assess risks associated with suppliers, market conditions, and regulatory changes—so procurement teams can mitigate supply chain disruption before it happens.

Δ Better relationships with suppliers: By clearly stating requirements and expectations in requests for proposals, and by monitoring and evaluating supplier performance, AI can contribute to the development of stronger, more reliable supplier relationships.

Source: https://www.sap.com/products/technology-platform/process-automation/what-is rpa.html https://www.sap.com/resources/ai-in procurement

Top 10 AI Tools for Procurement (Worst to Best)[2]

- Δ Globality
- Δ IBM
- Δ Watsonx
- Δ Basware
- Δ Zycus
- Δ SynerTrade
- Δ GEP SMART
- Δ IVALUA
- Δ Jaggaer
- Δ SAP Ariba
- Δ Coupa

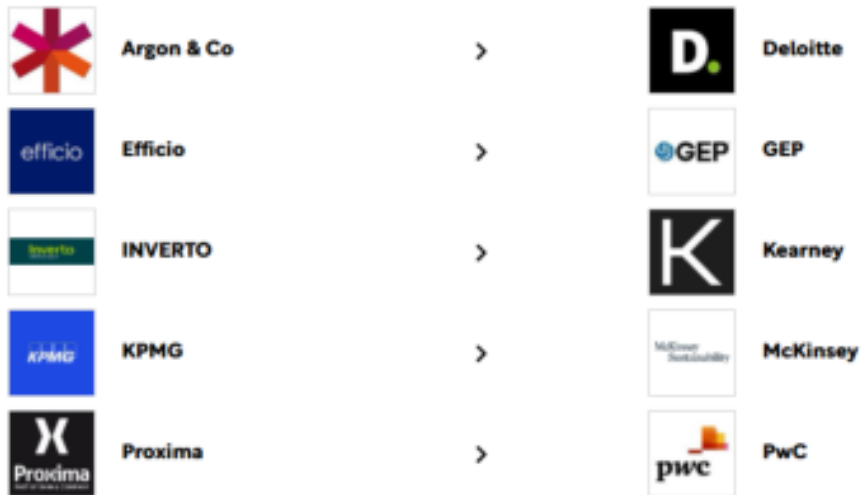## Δ GTEC AI-SC

It is designed as a priority…

1. To automatically create an ABC analysis of purchasing costs, quality, and OTD of each subsidiary
2. To analyze a worldwide bundle effect and automatically create a pyramid from preferred suppliers to strategic suppliers, and to cash out suppliers
3. To optimize logistics costs worldwide, to choose suppliers and forwarders who can deliver locally and globally at the best costs.
4. To integrate customers' needs to keep AI flexible and cost-effective to their needs.

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[2] Top 10: AI Tools for Procurement | Procurement Magazine; https://procurementmag.com/top10/top-10-ai-tools-for procurement

TOP Procurement Transformation Partners[3]

COMPANY PORTALS

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	Argon & Co	>		D.	Deloitte
	Efficio	>		GEP	GEP
	INVERTO	>		K	Kearney
	KPMG	>		McKinsey Sustainability	McKinsey
	Proxima	>		pwc	PwC

plus

German Technology and Engineering Cooperation (GTEC)

Focus: Supporting Western companies in BRICS+ countries and in Asia with a network of experts in AI, Supply Chain, Supplier Development, and Operations.

The BRICS list now includes eleven full members. Six other countries, namely Egypt, Ethiopia, Iran, UAE, Indonesia, and Saudi Arabia, joined the original founding countries, Brazil, Russia, India, China, and South Africa. Others like Belarus, Bolivia, Cuba, Kazakhstan, Malaysia, Nigeria, Thailand, Uganda, and Uzbekistan are applying and will join soon.

BELARUS	BOLIVIA	CUBA	KAZAKHSTAN	MALAYSIA	NIGERIA	THAILAND	UGANDA	UZBEKISTAN

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[3] https://procurementmag.com/top10/top-10-ai tools-for-procurement
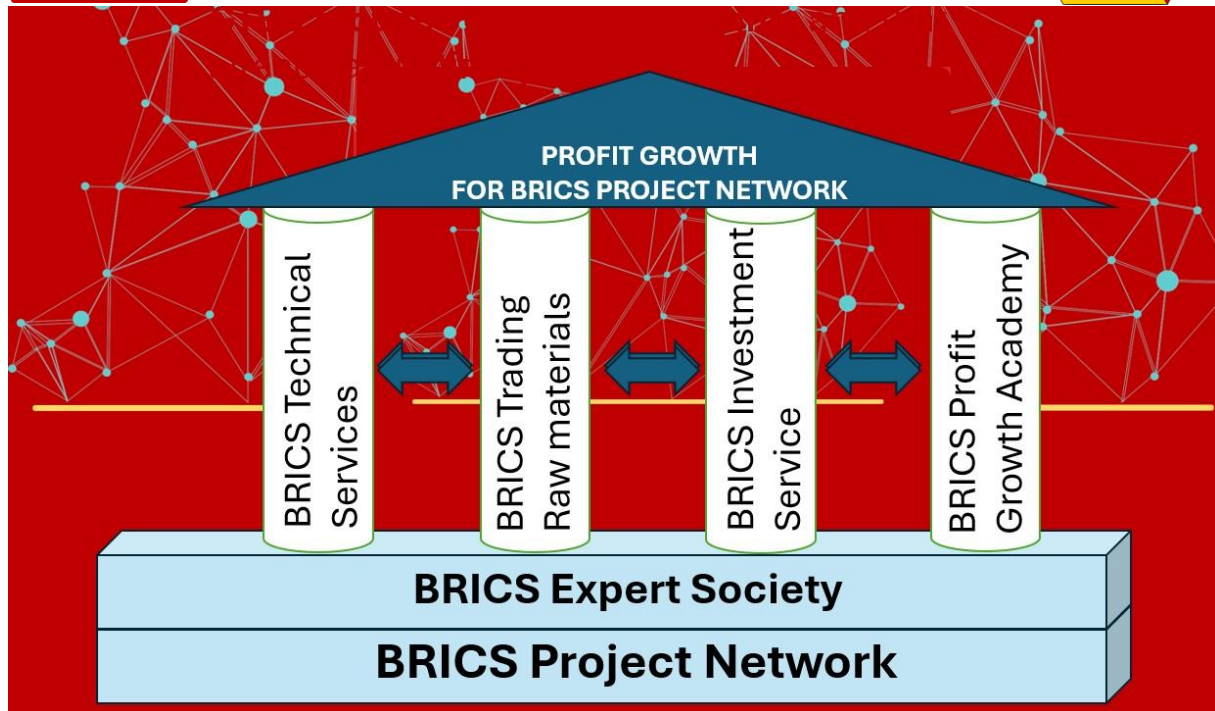
The following book was published by the CEO of GTEC, Karlheinz Zuerl, to show GTEC´s experience and skills to solve customers' challenges.
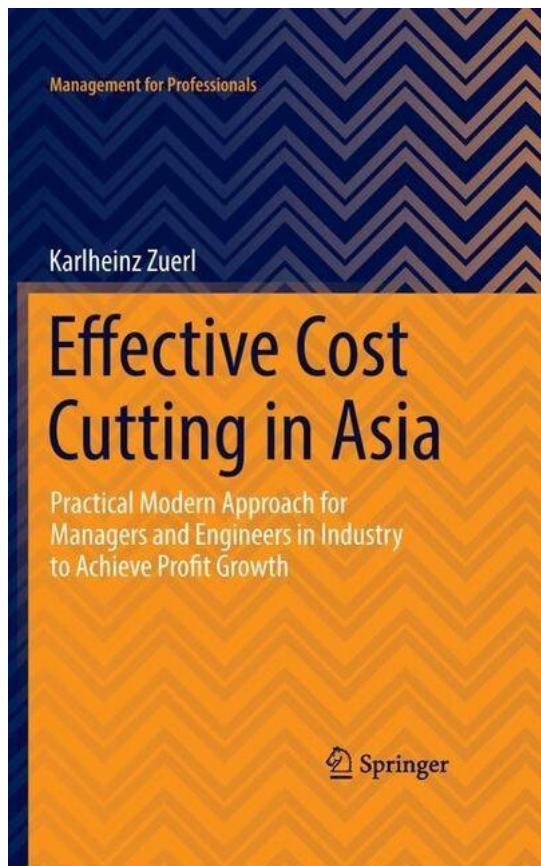
Questions:

Name of Product

Picture of product

NDA

Excel file

Format for ppt presentation

Format for word/pdf file

Possible questions to evaluate the calculation results:

- Δ   How many different products do we purchase worldwide?
- Δ   How many different product categories are defined worldwide?
- Δ   How many part numbers do we have worldwide?
- Δ   How does an ABC analysis of all suppliers look if A stands for high volume suppliers (annual order value)?
- Δ   What is the difference between the most expensive supplier and the cheapest one in each product category?
- Δ   What are the cost savings in total if we always choose the cheapest supplier worldwide?
- Δ   Where are our warehouses located for each supplier and for each category we ordered?
- Δ   What are the current transportation costs of each forwarder to ship products of each supplier?
- Δ   If we choose the cheapest supplier and bundle all products related to this supplier, how much order volume would we have in total and in percentage?
- Δ   If we use the cheapest forwarder to ship the higher volume at the price of the cheapest suppliers, how much savings would we have in one year?
- Δ   If we evaluate the cost breakdown and negotiate with the cheapest suppliers with higher volume to bring the price down by 5%, what would be the cost savings after price negotiation?
- Δ

In purchasing and inventory management, an **ABC chart** is a classification system that prioritizes items based on their overall value or importance to the business. The system is based on the Pareto principle (the 80/20 rule) and helps purchasing teams focus their limited time and resources on the most critical items.

Here is an example of an ABC analysis chart for a retail business, followed by a breakdown of how each category impacts purchasing strategy.

Example ABC Chart (Data & Classification)

This table shows a simplified example of an ABC analysis based on the **annual consumption value** (calculated as annual units sold × cost per unit).

Item ID	Description	Annual Units Sold	Unit Cost	Annual Consumption Value	Cumulative % Value	ABC Category
00034	Drilling machine	100	$90.00	$9,000	48%	A
56782	Workbench	80	$72.00	$5,760	78%	A
67421	Outdoor paint	150	$21.00	$3,150	94%	B
56432	Indoor paint	200	$10.00	$2,000	100%	B
10134	Glue	300	$9.00	$2,700	100%	B
12543	Screwdriver	500	$6.00	$3,000	100%	B
...	*remaining items*	...	*various*	*$1,290*	100%	C

Note: *The cumulative percentages help determine the thresholds. In this example, the A items represent approximately 78% of the total value, B items the next 22% (totaling 100%), and the many C items represent a negligible remaining value.*

ABC Categories and Purchasing Strategies

The primary purpose of the ABC analysis is to dictate different purchasing and control strategies for each category of items.

- **Category A (High Value/Importance)**

    - **Characteristics:** These items typically account for a small percentage (around 10-20%) of the total items but contribute a large percentage (around 70-80%) of the total consumption value or revenue.

    - **Purchasing Strategy:** Require tight control, frequent inventory counts, accurate demand forecasting, and rigorous supplier management. The purchasing team should focus on negotiating favorable contracts, minimizing stockouts, and closely monitoring lead times for these critical items.

- **Category B (Medium Value/Importance)**

    - **Characteristics:** These make up a moderate portion of items (around 30%) and value (around 15%).

    - **Purchasing Strategy:** Require moderate control and standard monitoring. The purchasing team can use less frequent reordering and standard inventory policies. Bundle deals might be explored to optimize sales alongside Category A items.

- **Category C (Low Value/Importance)**

    - **Characteristics:** These are the vast majority of items (around 50-70%) but represent very little of the total value (around 5%).

    - **Purchasing Strategy:** Require minimal control to reduce administrative overhead. The goal is efficiency. Strategies often involve maintaining higher safety stock, bulk purchasing to leverage economies of scale, and using automated reordering systems, as the cost of managing them closely outweighs the potential loss.