



Supply Chain Management –MGMT614 COMPLETE HANDOUTS LECTURE 1_44 INTRODUCTION OF THE COURSE COLLECTED AND ARRANGED BY STUDY GURUZ

VU
LECTURE 1

Rationale and logic

*If your career path has already provided you with an opportunity to witness and be a part of the formulation and implementation of important strategies pursued by your enterprise you are already aware of the importance of customer requirements. On the other hand, if you are contemplating a strategic job after completing your MBA, you may have already started to notice in your lectures and text books that organizations pay attention to what the customers have to say. And, it should not come as a big surprise to you that in most of the cases the primary driver of these strategies is Customer Satisfaction. As a matter of fact, Customer Satisfaction is now a global strategic objective and should be aimed for at cost effectiveness. This strategy is contingent upon smooth coordinated flow of raw materials, transformed finished goods (services), information and off course Cash Flow. **In other words a business can only be considered successful if it has a competitive supply chain that can result in Competitive Advantage.** It would be to your benefit to study this class with the same objective in mind. Please do understand that you are not alone in this regard, **business managers all over the globe whether working for any small or nascent, gigantic or established organization, are made to work relentlessly with the same aim and objective of cost effective based customer satisfaction through smooth coordinated Supply Chain.***

Supply Chain Management has emerged, in the last 25 years or so, as a road map to Enterprise Success and Competitive advantage. Integration of functional areas of the enterprise is possible through proper management and control of Supply Chain Operations. Information Technology (IT) plays a vital role in seamless integration of Supply Chain.

Decisions in Supply Chain are mostly based on Information Technology (IT). This is possible due to IT ensuring access to real life data. The fine tuning of the information that is collected is processed and distributed at various decision making points along the supply chain.

If you are planning to become one or already working as a business manager in the functional areas of Marketing, Operations or Procurement, **the importance of SCM can be readily understood.** Supply Chain encompasses all functional areas of enterprise.

This course would help the business manager/ virtual university student or manager in training to develop the important skill of qualitative and quantitative analyses.

This means you would be applying directly or indirectly the four generic Supply Chain strategies of **optimization, customization, innovation and Rationalization.**

1. The current managerial perspective of competitive advantage entails that we do not carry out static comparison of an enterprise with another enterprise (or COMPARING its product or service being offered with the product or service of its competitor) rather we now carry out the **COMPARISON OF A SUPPLY CHAIN OF AN ENTERPRISE WITH THE SUPPLY CHAIN OF THE COMPETITOR'S ENTERPRISE.**
2. So for the whole semester the **VIRTUAL UNIVERSITY STUDENT SHOULD** try to identify and accept all those opportunities that would allow him or her to gain an in depth knowledge about Supply Chain's functioning with respect to its own enterprise and its competitor's firm.

The Learning Objectives are covered in the form of distinct and unique modules in each and every lecture. The modules are not of any fixed duration or length rather the duration is contingent to the length, depth, qualitative and quantitative based content. For this lecture number 1, the following modules have been designed to address the respective learning objectives.

Module 1: Why this Course

Module 2: Learning Objectives

Module 3: Text Books

Module 4: Learning Methodologies

Module 5: Generic Supply Chain

Module 6: Pakistan's place in Comity of Nations

MODULE 1: WHY THIS COURSE?

Supply Chain Management is an essential and indispensable area of management that business executives are bound to learn and practice.

1. The objective in this course is specifically to help the students understand, appreciate and, consequently, develop purchasing, logistics and supply chain strategies that contribute positively to overall business objectives of their organizations.
2. The same objective should ideally meet the routine and non-routine situations (with few exceptions), with practical, rigorous and thorough approach.
3. This course will introduce concepts and techniques which will enable the student to comprehend and make good use of, in his or her practical job engagements and assignments as purchasing, supply chain management, sourcing management, sourcing management and other similar titles like logistics or transportation managers.
4. Having an understanding of Sourcing, Logistics and Supply Chain Management is critical for today's business leaders.
5. After successful completion students of this course would be in a position to replicate (adopt) successful and avoid the failed supply chain strategies experienced by business enterprises, around the globe.

MODULE 2 LEARNING OBJECTIVES

At the end of the course, you (the virtual university student) should be able to accomplish the following objectives:

- a. Develop an Understanding of the importance of Purchasing, Logistics and Supply Chain Management in the critical decision making process of any organization (manufacturing or services) and or for any government department.
- b. Get familiarized with various production processes and service systems affected by Purchasing and SCM.
- c. Develop an ability to identify what makes a specific issue important to contracting and procurement. Carry out research and analyze recognized or promising subject in the field of contracting and procurement.
- d. Expand on the new issues related to strategic policy in contracting and procurement.
- e. Develop Cognitive, Affective and Psychomotor approaches about Supply Chain Management with respect to building of a strategic framework, designing of the supply chain, planning demand and supply in the Supply Chain, Planning and Managing Inventories in the Supply Chain, Managing Cross functional drivers in a supply chain and applying all the same to the Pakistani Corporate and Government Departmental Environment
- f. And last but not the least investigate theoretical and practical Supply Chain approaches that organizations have adopted or are planning to adopt with a point of view to enhance their business performance in the future.

MODULE 3: TEXT BOOKS

The first 9 Lectures have been developed from listed books; whereas Chapters 10 to 45 have been developed primarily using Chopra and Meindl's Supply Chain Management text.

The content of the modules has been developed from the following textbooks as the source material.

BUSINESS LOGISTICS MANAGEMENT RONALD H BALLOU

Business Logistics Management textbook, by Ronald H Ballou, is an ideal resource for professionals who want to outshine in Business Logistics, Physical Distribution, Operations Management, Materials Management, and Supply Chain Management.

Students would learn the planning, organizing, and controlling of such activities as transportation, inventory maintenance, facility location, order processing, purchasing, warehousing, materials handling, packaging, customer service standards, and product scheduling-is specifically designed to help students solve actual challenges that they will encounter in today's marketplace. Practicing managers can make effective use of basic decision making tools; a lot of mathematical and quantitative support is available for cost reduction and strategic initiatives. Log ware software is also available on CD-ROM, which can be used by **SCM professionals in Pakistan to develop in house logistics solution with respect to Pakistani roads and means of transportation.**

PURCHASING & SUPPLY CHAIN MANAGEMENT**LYSONS AND FARRINGTON**

Lysons & Farrington is a fundamental purchasing knowledge resource. This book is an ideal source if the student is interested in opting for a Purchasing Sourcing and Procurement career in the UK or the Middle East. It is one of the more comprehensive textbooks on Purchasing & Supply Chain management currently available. Clearly written and covering a wide range of information, models and definitions, this book is an ideal overall resource for any course in Purchasing or Supply Chain Management. The contents clearly cover the syllabus of the Chartered Institute of Purchasing and Supply at both the Foundation and Professional stages and the text will provide a quick source of reference for practitioners on many aspects of purchasing and supply. Virtual University students working in the government departments may use this textbook to renew the old procurement procedures and transform them into current purchasing and supply chain management methods.

ESSENTIALS OF SUPPLY CHAIN MANAGEMENT**MICHAEL E HUGOS**

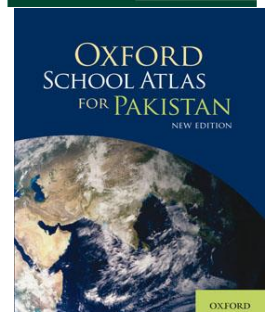
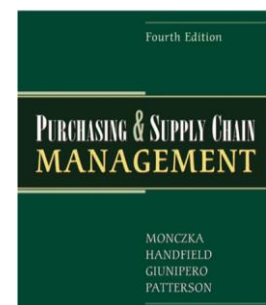
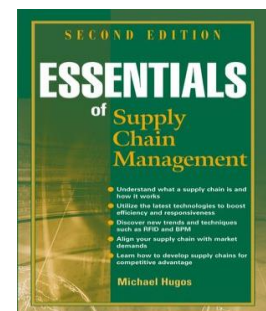
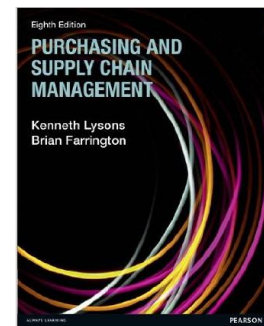
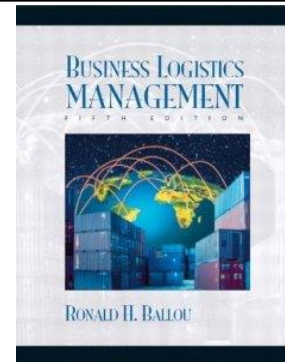
Essentials of Supply Chain Management, 2nd Edition, by Michael E Hugos, is focused on how supply chain managers can learn to utilize technology to boost efficiency and responsiveness, implement IT and adopt best practices available for supply chain management. The text also offers new cases. It helps the student in learning the strategies of creating an effective supply chain that is actually a key to staying ahead in today's complex business world.

PURCHASING & SUPPLY CHAIN MANAGEMENT**HANFIELD & GUINIPERO**

This text book represents best practices and research with respect to purchasing and supply chain. It captures professional experience and research to further enhance managerial perspective of the core tasks and challenges required to effectively manage the purchasing function within the context of an integrated supply chain. Please do remember that the Purchasing function is now slowly, but surely assuming a strategic stature in the government departments of Pakistan. All these job opportunities would require you to master the art and science of purchasing, supply management and supply chain management.

OXFORD ATLAS PAKISTAN

Every important aspect of Pakistan's geography is covered in detailed and clearly presented maps, including especially designed maps and graphs for crops, irrigation, energy, main industries, education and literacy, population, main cities, rural settlements, transport, natural hazards, and environmental damage.



It is also an indispensable source of reference for Supply Chain Managers; Transportation Managers who can integrate the Atlas maps, with various commercially available software's, to finalize their Supply Chain Network designs thus saving time and money for their enterprises through effective simulation techniques.

A word of caution: Virtual University Students are requested to comply with copy rights and proprietary information

SUPPLY CHAIN MANAGEMENT Strategy, Planning and Operation

CHOPRA & MEINDL

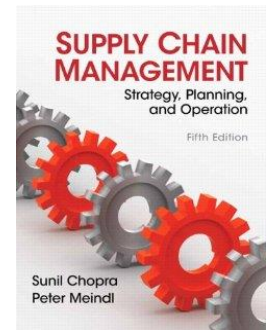
This book is targeted toward an academic as well as a practitioner audience. On the academic side, it should be appropriate for MBA students, engineering master's students, and senior undergraduate students interested in supply chain management and logistics.

It may also serve as a suitable reference for both concepts as well as methodology for practitioners in consulting and industry.

This textbook has become the most popular choice amongst the academia, consultants and business managers.

In addition, some of the modules have been prepared using Purchasing & Supply Management

By Leenders, Leenders, Anna Flynn, P. Fraser Johnson



MODULE 4: LEARNING METHODOLOGY

1. The course would focus on learning of important concepts and their judicious applications in this class and your life afterwards.
2. Remember it's an INTEGRATIVE LEARNING we are aiming for.
3. **Integrative Learning is integration of Virtual University Students academic learning and workplace or industry based best practices.** Integrative Learning is a learning theory, describing a movement toward integrated lessons helping students make connections across curricula. This higher education concept is distinct from the elementary and high school "integrated curriculum" movement.

Part I Introduction to SCM, Logistics, Purchasing & Supply Management and Strategic Frame Work

Part II Designing the Supply Chain

Part III Planning and Managing Supply and Demand and Inventory levels in a Supply Chain

Part IV Planning and Managing Inventories in a Supply Chain

Part V Designing and Planning Transportation Networks

Part VI Managing Cross Functional Drivers in a Supply Chain

Part I Introduction to SCM, Logistics, Purchasing & Supply Management and Strategic Frame Work

The goal of Part I is to provide a strategic framework (long term and should be viewed and treated as a long term CAPITAL ASSET) to analyze the design, planning, and operational decisions within supply chains. Such a framework helps clarify supply chain goals and identify managerial actions that improve supply chain performance in terms of the desired goals.

Lecture Plans

Lectures 1 to 15.

- Fundamental concepts/information about SCM, Logistics, Purchasing & Supply Management (Lectures 1- 9)
- Understanding the Supply Chain (Lectures 10 & 11)
- Supply Chain Performance: Achieving Strategic Fit and Scope (Lectures 12 & 13)

- Supply Chain Drivers and Metrics (Lectures 14 & 15)

Part II Designing the Supply Chain

The plan of Part II is to discuss a set of frameworks and tools used to design supply chain networks. Network design decisions are among the most important supply chain decisions, as their implications are significant and long lasting. In designing a supply chain, we need to consider how all supply chain drivers--facilities, transportation, inventory, information, sourcing, and pricing—should be used together to support the competitive strategy of an enterprise and maximize supply chain profits.

Lecture Plans

- Designing Distribution Networks and Applications to on line Sales (Lectures 16 & 17)
- Network Design in the Supply Chain (Lectures 18 to 21)
- Designing Global Supply Chain Networks (Lectures 22 & 23)

Ideally at this point in time, the students are ready to take their MIDTERM exams.

Part III Planning and Managing Supply and Demand and Inventory levels in a Supply Chain

The purpose of the Part III is to explain the significance of demand and supply planning in a supply chain, identify decisions that are part of the planning process, and discuss tools that supply chain managers can use for planning.

Planning allows a supply chain manager to be proactive and manage demand and supply to ensure that profits are maximized.

Lecture Plans

- Demand Forecasting in a Supply Chain (Lectures 24 & 25)
- Aggregate Planning in a Supply Chain (Lectures 26 & 27)
- Sales and Operations Planning: Planning Supply and Demand in a Supply Chain (Lectures 28 & 29)
- Coordination in a Supply Chain (Lectures 30 & 31)

Part IV Planning and Managing Inventory levels in a Supply Chain

The goal of Part IV is to describe the role that inventory plays in a supply chain and discuss actions that managers can take to decrease inventories without increasing cost or hurting the level of product availability.

Lecture Plans

- Managing Economies of Scale in a Supply Chain: Cycle Inventory (Lectures 32-33)
- Managing Uncertainty in a Supply Chain Safety Inventory (Lectures 34-35)
- Determining the Optimal Level of Product Availability (Lectures 36-37)

Part V Designing & Planning Transportation Networks

Part V deals specifically with the supply chain driver of transportation, the last of the three logistical drivers. In these two lectures, we discuss the strengths and weaknesses of various modes of transportation and different options for designing transportation networks.

We also discuss trade-offs among transportation cost, inventory cost, and responsiveness that must be considered when designing a supply chain

Lecture Plans

- Transportation in a Supply Chain (Lecture 38-39)

Part VI Managing Cross Functional Drivers in a Supply Chain

The aim of Part VI is to facilitate the student in discussing the impact of the traditional logistical drivers of supply chain performance-facilities, inventory, and transportation to the cross-functional drivers of sourcing, pricing, and information.

These drivers have grown in importance over the past decade and serve as an important point of differentiation between supply chain management and logistics.

Lecture Plans

- Sourcing Decisions in a Supply Chain (Lectures 40-41)
- Pricing & Revenue Management in a Supply Chain (Lectures 42-43)
- Information Technology in a Supply Chain (Lecture 44)
- Sustainability in a Supply Chain (Lecture 45)

STUDENTS LOG / JOURNAL BOOK

Virtual University students are encouraged to initiate their journal book. First Assignment is **LEARN** to study the map of Pakistan and identify the geographic relevance of the country with respect to International Trade by identifying roads, seaports, airports etc.

A series of maps are being presented here, these maps may require verification from different authentic sources like the Atlas of Pakistan etc. Students are requested to ensure that they are on board as far as the strategic infrastructure assets (roads, airports, seaports, railways etc.) are concerned

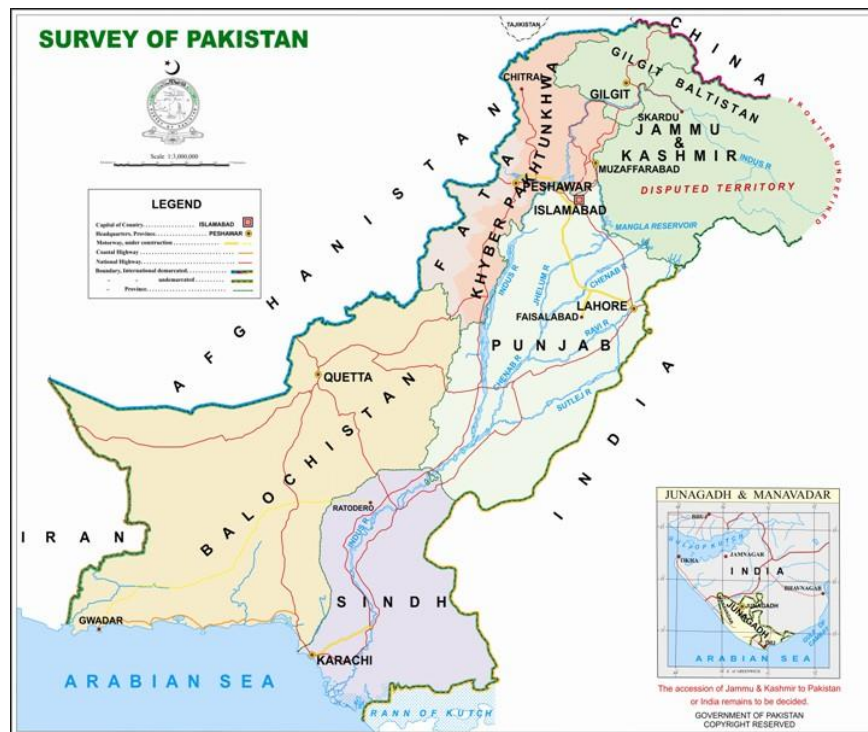
Ideally the students should in their journal book, write their own experience about the topic under discussion with respect to the Pakistani and International contemporary perspective.

Special emphasis should be placed on what the students have learnt.

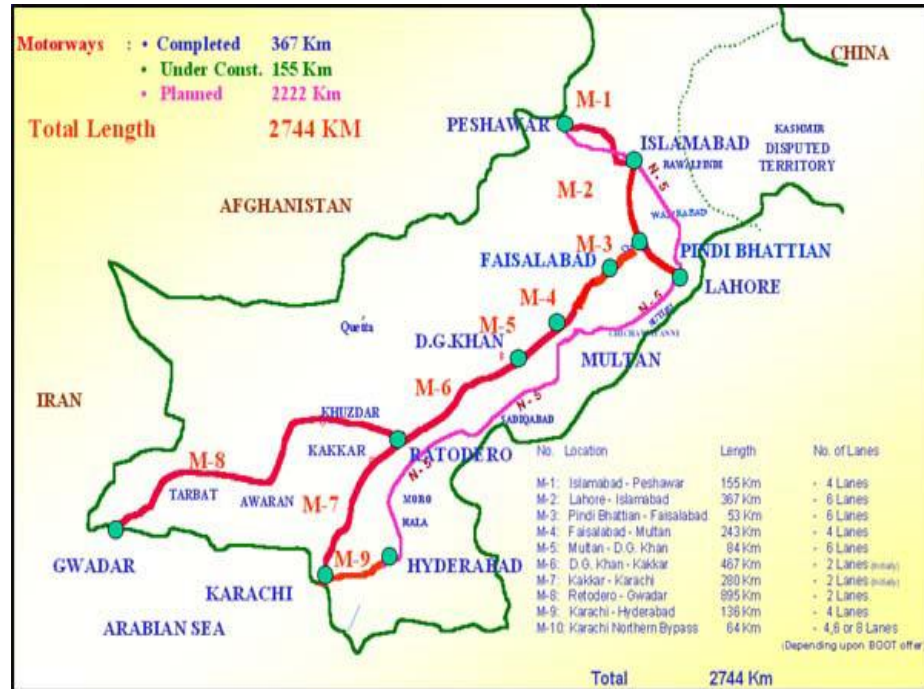
Students should identify the topics which they feel require further studying and clarification.

At the end of the semester the journal book should have at least 50 plus pages of information gathered, as per instructions laid out in these hand-outs with focus on Pakistani perspective faced by Supply Chain Professionals. This journal book is student's information treasure for times to come.

OFFICIAL MAP OF PAKISTAN



MAP OF PAKISTAN ROADS

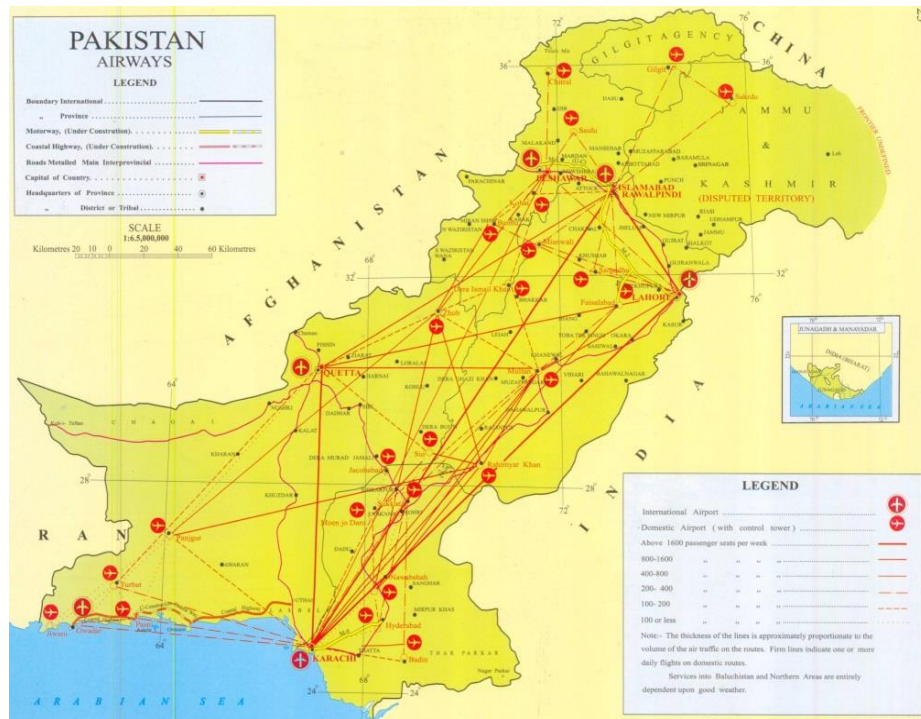


MAP OF PAKISTAN CAPTURING AIRPORTS

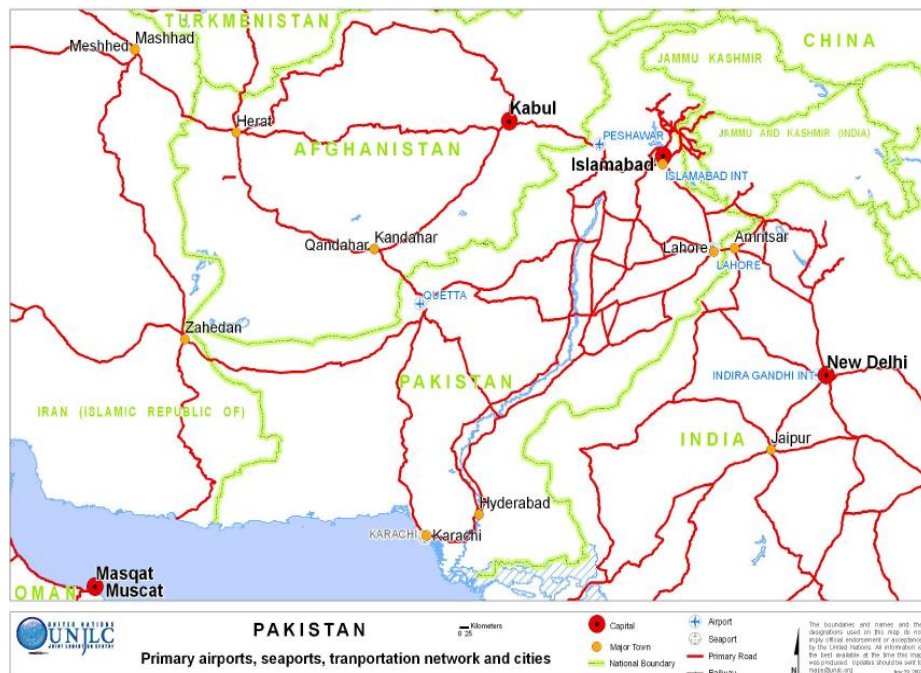


Note to the student's journal: these maps do not show the airports of Skardu & Sialkot; can you identify any other missing airport?

MAP OF PAKISTAN CAPTURING AIRWAYS



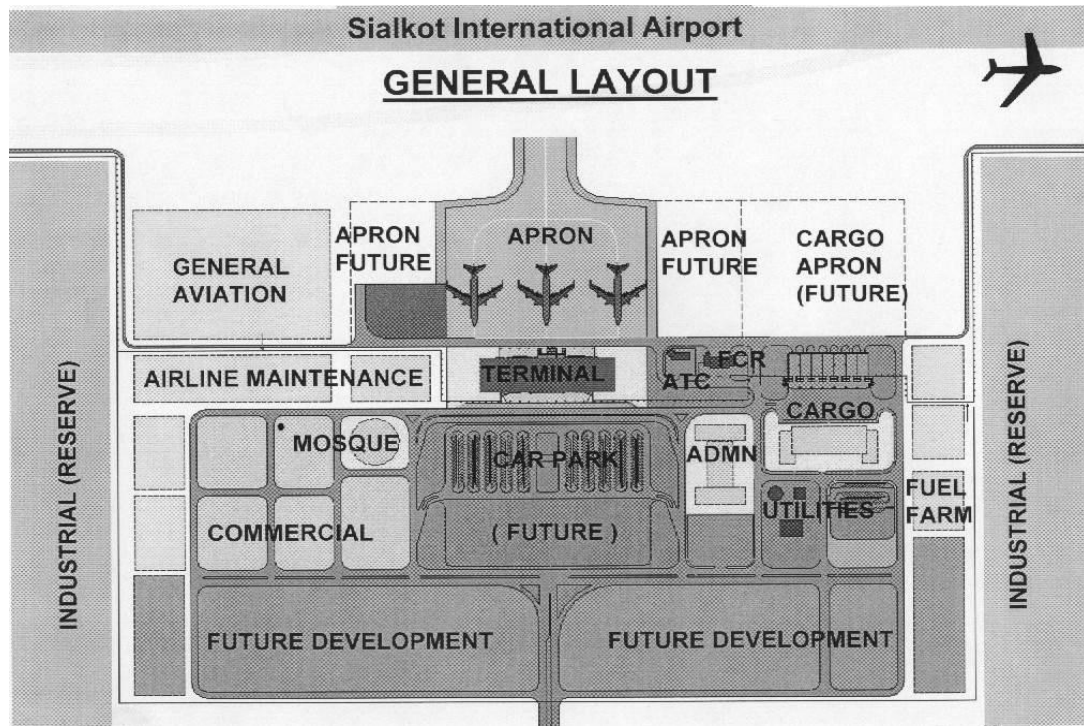
ANOTHER MAP IDENTIFYING THE MODES OF TRANSPORTATION IN PAKISTAN FROM THE PERSPECTIVE OF GLOBAL SUPPLY CHAIN



* For all maps read Khyber Pakhtun Khwa for North West Frontier Province

SIALKOT AIRPORT

The Sialkot Airport is unique in a sense that it was set up under the collaboration of Government and Private sector. The Airport actually highlights the potential of a lot of pragmatic strategies from the field of finance, operations and supply chain.



As a student of supply chain, identify the logistics, cargo, commercial & passenger areas?

PIPE LINE PROJECTS

In the subsequent modules on popular modes of transportation you would learn about Pipelines being a source of transportation of goods. It is an opportunity to write a summary of 1 paragraph in your log books about the supply chain perspective of these two projects.

- IRAN PAKISTAN INDIA PIPE LINE NOW ONLY IRAN PAKISTAN
- TURKMENISTAN PAKISTAN INDIA PIPE LINE

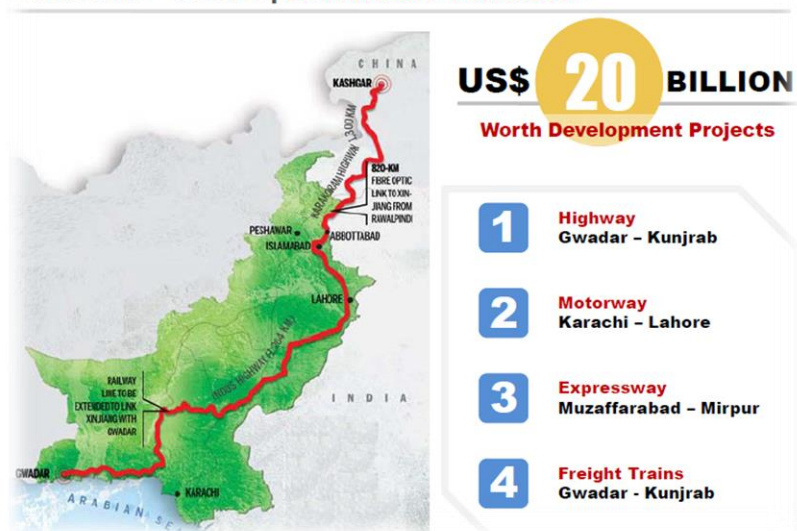
ECONOMIC CORRIDOR PROJECT

The China–Pakistan Economic Corridor (CPEC) is a development megaproject that plans to connect Gwadar Port in southwestern Pakistan to China's northwestern autonomous region of Xinjiang, via a network of highways, railways and pipelines to transport oil and gas.

The economic corridor is considered central to China–Pakistan relations and will run about 3,000 km from Gwadar to Kasghar. Overall construction costs are estimated at \$46 billion, with the entire project expected to be completed in several years. The Corridor is an extension of China's proposed 21st century Silk Road initiative.

The main megaproject when broken up in series of smaller

Pakistan – China | Economic Corridor



projects would not only bring prosperity for Pakistan but would develop the Supply Chain Infrastructure of the Country.

These projects if completed would bring an improvement in infrastructure of Supply Chain as well as increase the trade volume for Pakistan not only with China but with other countries of the world. The list also includes Pak-Iran Gas line project as well.

A total of 51 memorandums of understanding were signed in diverse sectors between China and Pakistan during visit of Chinese president to Pakistan on 20 April 2015.

Source: Dawn, 21st April 2015.

END OF LECTURE 1: GIST AND CRUX

1. *Supply Chain Management and Logistics involve optimizing the delivery of goods, services and information from supplier to customer or vice versa in case of reverse supply chain. Information can flow from the supplier to customer and off course from the customer to the supplier.*
2. *An effective supply chain makes companies competitive and profitable.*
3. *Information is essential to making optimal supply chain decisions because it provides the global scope needed to make optimal decisions.*
4. *Information technology (IT) provides the tools together this information and analyses it to make the best supply chain decisions.*
5. *Latest and the state of art technologies and management tools ERP, CRM, and SRM along with auto ID technique RFID have to be used for improving the performance of Supply Chain Management and Logistics in Pakistan.*

SUPPLEMENT TO LECTURE 2

MODULE: SUPPLY CHAINS AND VALUE CHAINS

Over time, researchers and practitioners have developed dozens of definitions to describe supply chains and supply chain management. One group of researchers has indicated that defining supply chain management both as a philosophy and as a set of operational activities creates confusion not only for students but also practicing managers. **These researchers break down the concept into three areas and separate supply chain orientation from supply chains and from supply chain management.** These three areas are Supply Chain Orientation, Supply Chain and Supply Chain Management respectively.

A **supply chain orientation** is a higher-level recognition of the strategic value of managing operational activities and flows within and across a supply chain. A **Supply Chain** is a set of three or more organizations linked directly by one or more of the upstream or downstream flows of products, services, finances, and information from a source to a customer. **Supply Chain Management**, then, endorses a supply chain orientation and involves proactively managing the two-way movement and coordination of goods, services, information, and funds (i.e., the various flows) from raw material through end user. According to this definition, supply chain management requires the coordination of activities and flows that extend across boundaries. Organizations that endorse a supply chain orientation are likely to emphasize supply chain management. (Source: Purchasing & Supply Management, 5th Edition, Giunipero and Handfield)

Regardless of the definition or supply chain perspective used, the **virtual university students should recognize that supply chains are composed of interrelated activities that are internal and external to an enterprise.** These activities are diverse in their scope; the participants who support them are often located across geographic boundaries and often come from diverse cultures.

a. **PROCESS APPROACH:** Although many activities are part of supply chain management, an improved perspective visualizes supply chains as composed of processes rather than discrete, often poorly aligned activities and tasks. A process consists of a set of interrelated tasks or activities designed to achieve a specific objective or outcome. New-product development (NPD), customer-order fulfillment, supplier evaluation and selection, and demand and supply planning are examples of critical organizational processes that are part of supply chain management.

b. **REVERSE SUPPLY CHAIN:** Recent product recalls of consumer products such as toys, peanut butter, and dog food have placed increasing emphasis on a new supply chain concept: the reverse supply chain; its goal is to rapidly identify and return these tainted products back through the supply chain.

Recognizing supply chains as a series of methodical procedure (systematic processes) makes sense for a number of reasons. Almost by definition, processes usually move across a functional boundary, which aligns well with a supply management and supply chain orientation.

c. **BUILT IN AND DOCUMENTATIONS:** Well-communicated processes also accelerate learning as participants become familiar with a defined process. Furthermore, formal supply chain processes can “build in” best practices and knowledge that enhance the likelihood of success. Perhaps most importantly, organizations can document, measure, and improve their supply chain processes.

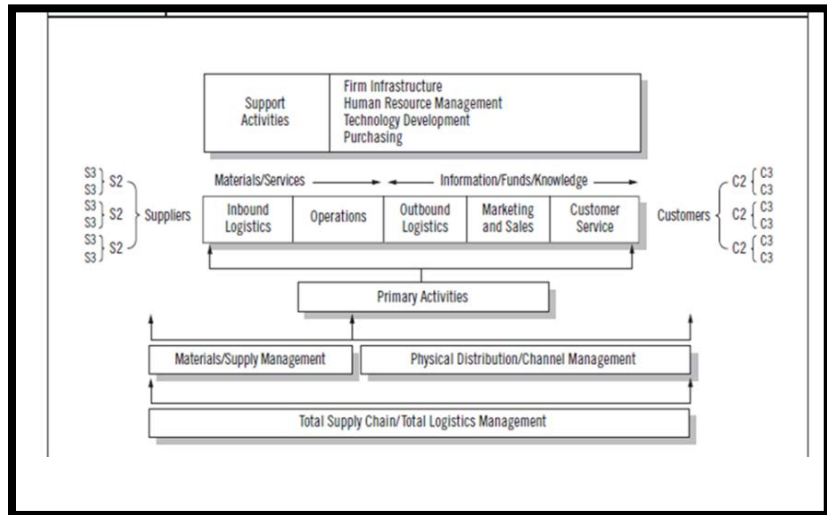
d. **PORTERS VALUE CHAIN MODEL:** The Supply Chain Professionals often feel perplexed while identifying the difference between a value chain and a supply chain. Michael Porter, who first presented the value chain concept in the 1980s, suggests that an enterprise’s value chain is composed of primary and support activities that can lead to competitive advantage when configured properly. One way to think about the difference between a value chain and supply chain is to conceptualize the supply chain as a subset of the value chain. All personnel within an organization are part of a value chain. The same is not true about supply chains. The primary activities, or the horizontal flow across the above figure, represent the operational part of the value chain, or what some refer to as the supply chain.

e. **INTERNAL AND EXTERNAL FOCUS:** At an organizational level, the value chain is broader than the supply chain, because it includes all activities in the form of primary and support activities. Furthermore, the original value chain concept focused primarily on internal participants, whereas a supply chain, by definition, is both internally and externally focused.

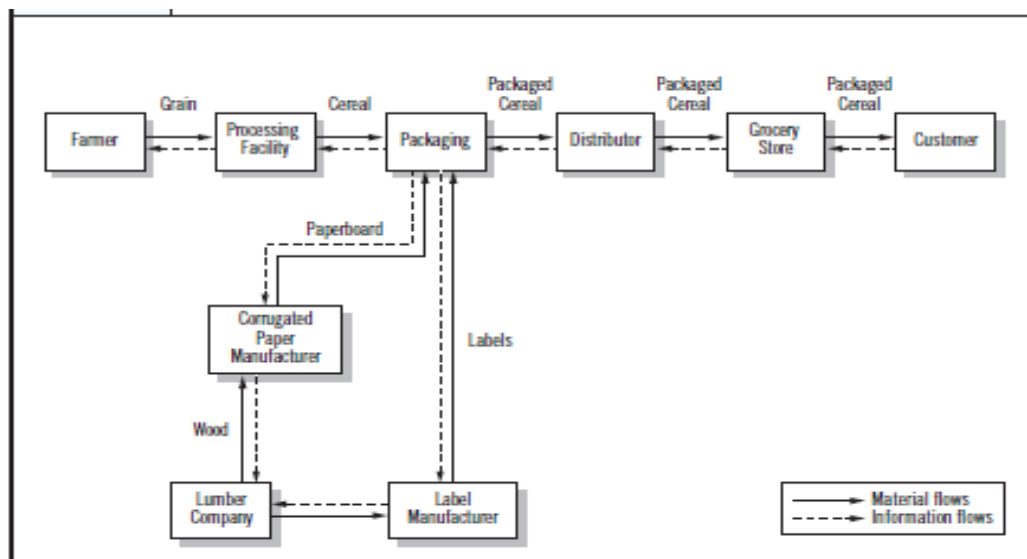
Figure on the left, presents a modified version of Porter's value chain model. This exhibit also defines some important supply chain–related terms and places them in their proper context.

f. **MULTI TIER SYSTEM OF SUPPLIERS AND CUSTOMERS:** To reflect current thinking, we must expand the original value chain model, which focused primarily on internal participants, to include suppliers and customers who reside well upstream and downstream from the focal organization. Multiple levels of suppliers and customers form the foundation for the extended value chain or the extended enterprise concept, which states that success is a function of effectively managing a linked group of enterprises past first-level suppliers or customers. In fact, progressive enterprises understand that managing cost, quality, and delivery requires attention to suppliers that reside several tiers from the producer. The extended enterprise concept recognizes explicitly that competition is no longer between enterprises but rather between coordinated supply chains or networks of enterprises.

Virtual University students are encouraged to go through Giunipero and Handfield text to understand a more thorough knowledge about Extended Value Chain with two diverse examples of supply chains like the Cereal Manufacturers and Automotive Manufacturers.



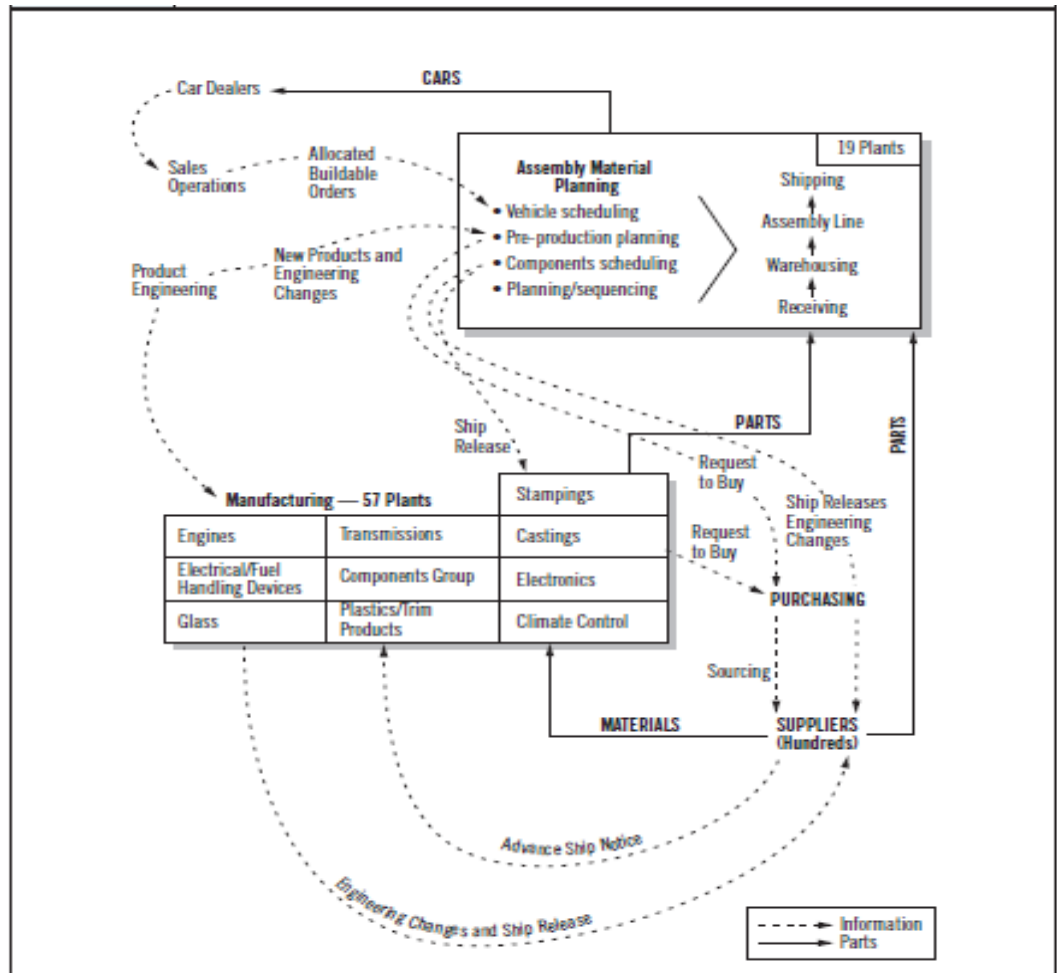
g. The right-hand side of the model illustrates the customer, or downstream, portion of the supply



chain. Because meeting or exceeding customer expectations is the lifeblood of any organization, it should become the focal point of supply chain activities. Exhibit presents a relatively straightforward and linear view of the value and supply chain, which is often not the case. First, the flows of materials, information, funds, and knowledge across a supply chain are often fragmented and uncoordinated. The “hand-off” points from one group to the next or from one organization to the next usually provide opportunity for improvements.

h. Second, the value chain model shows suppliers linking with inbound logistics and then operations. Although this is usually the case with direct materials, indirect items and finished goods sourced externally can result in suppliers delivering to any part of the supply chain.

i. Notice that the Figure identifies purchasing as a support activity. This means that purchasing



provides a service to internal customers. Although purchasing is the central link with suppliers that provide direct materials, which is the upstream or left hand side of the figure

j. Purchasing can support the materials and service requirements of any internal group. Direct materials are those items provided by suppliers and used directly during production or service delivery. Purchasing is becoming increasingly responsible for sourcing indirect goods and services required by internal groups. Examples of indirect items include personal computers, office and janitorial supplies, health care contracts, transportation services, advertising and media, and travel. Although indirect items are not required for production, they are still vital to the effective running of an organization.

SUPPLEMENT TO LECTURE 3

MODULE: TYPES OF PURCHASE ORDERS (CONTRACTS)

There are different types of purchase orders; due to our scope curtailments we will only identify the two fundamental types the Fixed Price Contract and Cost Based Contract. Virtual University Students are requested to study this module in conjunction with Contract Management Modules (covered in Lecture 7) to ensure that are able to comprehend purchase orders and contracts.

1. **Fixed-price contracts:** The most basic contractual pricing mechanism is called an enterprise fixed price. In this type of purchase contract, the price stated in the agreement does not change, regardless of fluctuations in general overall economic conditions, industry competition, levels of supply, market prices, or other environmental changes.

This contract price can be obtained through any number of pricing mechanisms: price quotations, supplier responses to the buying organization's requests for proposal, negotiations, or any other method. Fixed-price contracts are the simplest and easiest for purchasing to manage because there is no need for extensive auditing or additional input from the purchasing side. Are normally used for repetitive jobs where financial risk (market fluctuations), competition and technology risk are already known and taken into consideration.

If market prices for a purchased good or service rise above the stated contract price, the seller bears the brunt of the financial loss. However, if the market price falls below the stated contract price due to outside factors such as competition, changes in technology, or raw material prices, the purchaser assumes the risk or financial loss.

Cost-based contracts: Cost-based contracts are appropriate for situations in which there is a risk that a large contingency fee might be included using a fixed-price contract. Cost-based contracts typically represent a lower level of risk of economic loss for suppliers, but they can also result in lower overall costs to the purchaser through careful contract management. It is important for the purchaser to include contractual terms and conditions that require the supplier to carefully monitor and control costs. The two parties to the agreement must agree what costs are to be included in the calculation of the price of the goods or services procured.

Cost-based contracts are generally applicable when the goods or services procured are expensive, complex,

TYPE OF CONTRACT	DESCRIPTION	BUYER RISK	SUPPLIER RISK
Firm fixed price	Price stated in the agreement does not change, regardless of any type of environmental change.	Low	High
Fixed price with escalation/de-escalation	Base prices can increase or decrease based on specific identifiable changes in material prices.	↑	↑
Fixed price with redetermination	Initial target price based on best-guess estimates of labor and materials, then renegotiated once a specific level or volume of production is reached.	↑	↑
Fixed price with incentives	Initial target price based on best-guess estimates of labor and materials, then cost savings due to supplier initiatives are shared at a predetermined rate for a designated time period.	↑	↑
Cost plus incentive fee	Base price is based on allowable supplier costs, and any cost savings are shared between the buyer and supplier based on a predetermined rate for a designated time period.	↓	↓
Cost sharing	Actual allowable costs are shared between parties on a predetermined percentage basis and may include cost productivity improvement goals.	↓	↓
Time and materials contract	Supplier is paid for all labor and materials according to a specified labor, overhead, profit, and material rate.	↓	↓
Cost plus fixed fee	Supplier receives reimbursement for all allowable costs up to a predetermined amount, plus a fixed fee, which is a percentage of the targeted cost of the good or service.	High	Low

and important to the purchasing party or when there is a high degree of uncertainty regarding labor and material costs. Cost-based contracts are generally less favorable to the purchasing party because the threat of financial risk is transferred from the seller to the buyer.

- Risk of large contingency fee
- Need to identify and monitor relevant supplier costs

Another important point worth sharing with the Virtual University Students is the difference among the critical terms like Request for Information, Request for Proposal, Request for Quotation and Request for Comments etc. which are necessary part of contract management and often serve as a precursor to contract management and Terms of reference associated with the Contract Management.

2. **Request for information (RFI)** is a standard business process whose purpose is to collect written information about the capabilities of various suppliers. Normally it follows a format that can be used for comparative purposes.

An RFI is primarily used to gather information to help make a decision on what steps to take next. RFIs are therefore seldom the final stage and are instead often used in combination with the following: request for proposal (RFP), request for tender (RFT), and request for quotation (RFQ). In addition to gathering basic information, an RFI is often used as a solicitation sent to a broad base of potential suppliers for the purpose of conditioning suppliers' minds, developing strategy, building a database, and preparing for an RFP, RFT, or RFQ.

3. **Request for proposal (RFP)** is a solicitation made, often through a bidding process, by an agency or company interested in procurement of a commodity, service or valuable asset, to potential suppliers to submit business proposals. It is submitted early in the procurement cycle, either at the preliminary study, or procurement stage. The RFP process brings structure to the procurement decision and is meant to allow the risks and benefits to be identified clearly up front.

4. **Request for Tenders (RFT)** is an official, structured application (invitation) to suppliers to bid to supply products or services. In the public sector, such a process may be required and determined in detail by law to ensure that such competition for the use of public money is open, fair and free from illegal practices like bribery and nepotism. As a consequence of the scale of the tender process the majority of RFTs are published by the government sector, but companies in the infrastructure and utilities sectors may also publish RFTs.

5. **Request for Quotation (RFQ)** is a standard business process whose purpose is to invite suppliers into a bidding process to bid on specific products or services. RFQ generally means the same thing as IFB (Invitation for Bid). An RFQ typically involves more than the price per item. Information like payment terms, quality level per item or contract length are possible to be requested during the bidding process.

6. **Request for Comments (RFC)** is a publication of the Internet Engineering Task Force (IETF) and the Internet Society, the principal technical development and standards-setting bodies for the Internet. An RFC is authored by engineers and computer scientists in the form of a memorandum describing methods, behaviors, research, or innovations applicable to the working of the Internet and Internet-connected systems. It is submitted either for peer review or simply to convey new concepts, information, or (occasionally) engineering humor. The IETF adopts some of the proposals published as RFCs as Internet standards.

7. **Reverse Auction:** A reverse auction is a type of auction in which the roles of buyer and seller are reversed. In an ordinary auction (also known as a forward auction), buyers compete to obtain a good or service by offering increasingly higher prices. In a reverse auction, the sellers compete to obtain business from the buyer and prices will typically decrease as the sellers undercut each other.

8. **Terms of reference** describe the purpose and structure of a Contract, Project, Committee, Meeting, Negotiation, or any similar collection of people who have agreed to work together to accomplish a shared goal. The terms of reference of a project are often referred to as the project charter.

MODULE: TYPES OF PURCHASES

A purchase manager may be responsible for purchase of raw materials, semi-finished products and components, finished products, Maintenance, repair, and operating supplies (MRO), production support items, services, capital equipment and transportation and third-party logistics providers.

A point of special concern for Purchase Managers is the special significance of MRO Purchasing. Most organizations do not track MRO items like they do production items and these increases the responsibility of the maintenance as well as the purchase department. There are typically too many MRO suppliers. There are too many small orders which take up too much time. All these factors make it MRO purchasing very critical yet least talked about by the senior management.

MODULE: HOW TO IMPROVE PURCHASING PROCESS

Improving the Purchasing Process is necessary; all organizations place a special emphasis on the importance of the critical purchase of MRO items and should not be neglected. An organization or enterprise can improve its purchase process by:

1. Implementing and making use of Online requisitioning systems
2. Issuing Procurement cards to end users
3. Using internet based E-commerce for reverse auction, b2b buying etc.
4. Developing longer-term purchase agreements
5. Employing Online ordering systems
6. Redesigning the Purchasing process
7. Making use of Electronic data interchange (EDI)
8. Referring to Online ordering and electronic catalogs
9. Managing Direct user-supplier contact

The aforementioned steps are neither sequential nor compulsory but depend on the informational assets and procedural systems of the organization.

BENEFITS OF e-PROCUREMENT SYSTEMS

Virtual University students are requested to identify benefits of e-Procurement Systems at their work place or make use of the internet to study e-Procurement Systems, currently in use.

Primary benefits of e-procurement are cost savings and increased available time to concentrate on core business.

1. *E-procurement* systems allow enterprises to concentrate large volumes of small purchases with a few suppliers, using e- catalogues, available to the organization's users.
2. Reverse auctions is a specialized application of e-Procurement Systems. Pre-qualified suppliers enter Web site and at pre-designated time & date, try to underbid competitors, monitoring bid prices until the session is over.

ASSESSING & IMPROVING THE ENTERPRISE'S PURCHASING FUNCTION

The purchasing function is one of the most value-enhancing functions in any organization. If continuous online or e-audit is not possible then it is preferable to periodically

1. Monitor the purchasing function's performance against set standards, goals, and/or industry benchmarks.
2. Surveys or audits can be administered as self-assessments among purchasing staff as part of the annual evaluation process.

Skill set requirements of purchasing professionals has been changing. Purchasing personnel must today exhibit world-class skills such as Interpersonal communication, ability to make decisions, ability to work in teams, analytical skills, negotiation skills, customer focus, ability to manage change, influencing & persuasion skills, strategic skills and understanding business conditions

The **Assessment criteria include** a host of important facts, some of the more critical aspects are:

1. Participating in and leading multifunctional teams ,
2. Participating in value engineering efforts.
3. Optimizing supply base.
4. Creating ESI initiatives
5. Utilizing e-procurement
6. Integrating supplier addition and cooperation
7. Contributing to new product development
8. Improving time to market
9. Initiating supplier cost reduction programs
10. Creating strategic alliances

SUPPLEMENT TO LECTURE 4

ETHICAL AND SUSTAINABLE PURCHASING INITIATIVES

Ethical and Sustainable Framework of purchasing includes numerous initiatives like Supply Base Rationalization Program and Supplier Certification Programs.

Supply base rationalization Also Known As (AKA) **supply base reduction** or **supply base optimization** is often the initial supply chain management effort.

Buyer-supplier partnerships are easier with a rationalized supply base & result in –

1. Reduced purchase prices
2. Fewer supplier management problems
3. Closer & more frequent interaction between buyer & supplier
4. Greater levels of quality & delivery reliability

Supplier certification programs are used to identify **strategic supplier alliance** candidates

Enterprises use in-house formal certification programs, & most require **ISO 9000/ 14000** or similar certifications as part of the certification process

Buyers can monitor quality assurance methods & specify the type of **acceptance sampling & statistical process control** methods used

Outsourcing Products and Services

Virtual University Students are already aware of the benefits of outsourcing for the sake of easy reference we list the benefits or advantages. **Outsourcing** allows an enterprise to –

1. Concentrate on core capabilities
2. Reduce staffing levels
3. Accelerate reengineering efforts
4. Reduce management problems
5. Improve manufacturing flexibility.

Outsourcing Products and Services decision carries inherent risk. Risks associated with outsourcing, include:

- a. Loss of control both with respect to production decisions & intellectual property
- b. Increased undue reliance on suppliers
- c. Increased need for supplier management

The two common types of Outsourcing of Products and Services include In-sourcing and Co-sourcing.

1. **In-sourcing (back sourcing):** Reverting to in-house production when quality, delivery, and services do not meet expectations
2. **Co-sourcing (selective sourcing):** The sharing of a process or function between internal staff and an external provider & provides flexibility to decide what areas to outsource, when, and for how long.

Early Supplier Involvement, Value Engineering & Vendor Managed Inventories

Early supplier involvement (ESI) is one of the highly effective supply chain integrative techniques. Key suppliers become more involved in the internal operations of the enterprise, particularly with respect to **new product & process design, concurrent engineering design for manufacturability** techniques.

Value Engineering activities help the enterprise to **reduce cost, improve quality & reduce new product development time**

Vendor Managed Inventory (VMI): Suppliers manage buyer inventories to reduce inventory carrying costs & avoid stock-outs for buyer

Selecting quality and capable suppliers

Selecting supplier is not an easy process. Many different formulas and techniques can be used. One effective method assigns suppliers to four basic categories based upon their level of performance in key areas, such as

delivery, quality and responsiveness. This should ideally address the common problems of stock out and bull whip effect.

From the buyer-enterprise's perspective –

1. Supplier tracks inventories
2. Determines delivery schedules and order quantities
3. Buyer can take ownership at stocking location

From the supplier's perspective –

1. Avoids ill-advised customer orders
2. Supplier decides inventory set up & shipments
3. Opportunity for supplier to educate customers about other products

Electronic data interchange (EDI)

1. Allows a supplier to profile demand & determine accurate forecasts
2. EDI also provides reorder point data to permit timely deliveries

Supplier co-location or JIT II

Supplier's employee is embedded in buyer's purchasing department to forecast demand, monitor inventory & place orders with access to sensitive files & records

Early Supplier Involvement and Early Buyers Involvement

1. **Reduce costs and product development collaboration:** For a lot of enterprises, the cost of purchased materials accounts for more than half of their expenses, so it's a good place to try to reduce costs. As well as increased use of suppliers, the future promises the earlier involvement of the supplier in the product development process.
2. **Product Development Process as set of Parallel Activities:** Previously, suppliers weren't involved early in the process. The activities of the product development process were carried out in series, and suppliers were only involved near the end of the process. A typical product would go through many activities – it might start life in the marketing function, and then go through conceptual design, engineering design and analysis, testing, detailed design, manufacturing engineering, process planning, tooling, production planning, purchasing, machining, assembly, testing, packaging, installation and maintenance.
3. **Barriers to Optimal Supplier Base:** In some cases, suppliers were only brought into the process to compete against each other on pricing. As a result the company finished up working with a large number of suppliers, and even with different suppliers on similar products. It was impossible to build up the stable, long-term quality-generating relationships that lead to client satisfaction. The product development process needs to be re-organized in order to:-
 1. respond to the need to get products to market faster,
 2. reduce the cost of developing products
 3. make sure the product provides customer satisfaction

In team-oriented matrix based enterprises, employees from different functions will work together on the upstream activities, effectively taking the major decisions about the entire product development process in the initial design phase. The team will need to know in detail at an early stage about the different parts of the product, and the way the parts fit together. The team will want to make the best possible use of suppliers with the aim of getting a customer-satisfying product to market as quickly as possible. This will probably mean involving the supplier right at the beginning of the process, when the major modules of the product are being defined. The supplier will then be given the job of designing and manufacturing a complete sub-assembly.

In the re-organized process, suppliers will be expected to respond quickly, to be responsible and to be reliable. They will be expected to have excellent skills, knowledge and experience concerning particular parts or activities. The company will want to have long-term relationships with a small group of highly competent, knowledgeable and trusted suppliers. **(Please refer to Modules in Lecture 5)**

In enterprises that don't have early supplier involvement, improvement initiatives in the Engineering Department will be limited to expected improvements in the performance of the product development process; engineering productivity whereas the quality features due to lack of involvement of the supplier may be compromised.

Early Buyers Involvement

Ideally sellers want a qualified buyer to pay very close to maximum value for their business. In addition to high range value, sellers consistently prefer to deal with a buyer whom they like and can trust with the future of their business and its employees. What attitude attracts and retains a qualified buyer through the closing?

At the same time buyers hope to find a bargain, but expect to pay a fair price. In addition to a fair price, buyers always prefer to deal with a willing and cooperative seller, whom they like and can trust. What attitude encourages open dialog and bonding?

Proactive and cooperative sellers set the tone for fair value negotiations. Proactive buyers always respond favorably to a seller's cooperative tone. When a seller's cooperation is sincere, a buyer generally tries harder to meet a seller's needs. In the best transactions a special rapport builds, which results in an extra effort by the seller to help the buyer succeed.

The most successful buyers actively communicate with the seller and follow-up with a fax or letter. Successful buyers have conversations with the seller about post-acquisition issues. Personal involvement is critical. Most sellers want to sell to a buyer who both shares the seller's vision and will preserve the existing corporate culture. The price paid is very important, but the winning buyers are those who establish rapport, a shared vision, and a personal bonding with the seller.

Remember, intermediaries bring buyers, advice, and assist. Sellers must actively sell their business. The term "Buyer" is reserved for those who have pulled the trigger and closed. Others are just "Prospective Buyers".

Successful closings, a high commitment for direct personal involvement is required between the seller and the buyer.

Supplier Management Team: Supplier management team is a discipline of working collaboratively with those suppliers that are vital to the success of your organization, to maximize the potential value of those relationships.

Strategic Alliance Development

Alliance development, an extension of **supplier development** refers to increasing a key or strategic supplier's capabilities.

Supplier alliances result in better market penetration access to new technologies & knowledge, & higher return on investment

Alliance development eventually extends to an enterprise's second-tier suppliers, as the enterprise's key suppliers begin to form their own alliances.

Rewarding Supplier Performance

Rewarding suppliers provides an incentive to surpass performance goals

Punishment is a negative reward, may be to reduce future business; or a bill-back amount equal to the incremental costs resulting from a late delivery or poor quality

Strategic supplier agreements can reward suppliers by allowing –

1. A share of the cost reductions
2. More business and/or longer contracts
3. Access to in-house training seminars & other resources
4. Company & public recognition

Benchmarking Successful Sourcing Practices

Benchmarking measures what other businesses do best and matching their performance is an effective approach to improving supply chain performance. Benchmarking data regarding sourcing practices can be obtained in any number of ways, both formal & informal.

Resources for learning about & implementing sourcing practices:-

1. The Center for Advanced Purchasing Studies.
2. Supply-Chain Council.

Using Third-Party Supply Chain Management Services

Third-party logistics (3PL): A growing industry that involves managing an enterprise's sourcing or materials &/or product distribution responsibilities

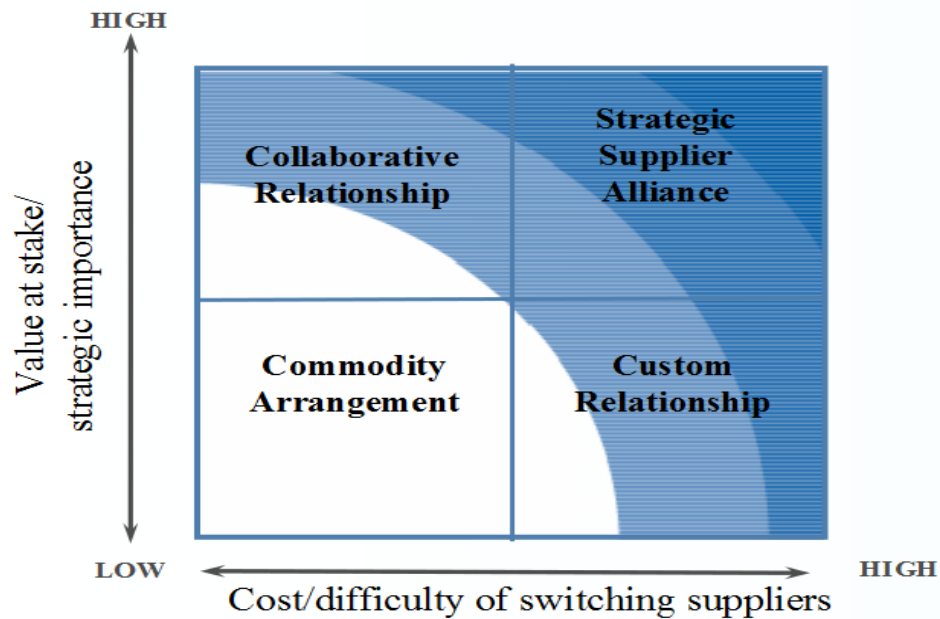
3PL providers charge a fee for services for an estimated savings of 10 to 20% of total logistics costs; benefits include improved service, quality, & profits for their clients.

1. **Vendor-managed inventory (VMI) services** – One of the more popular roles of 3PL.
2. **Lead logistics provider (LLP), aka 4PL** – A primary 3PL provider; one that oversees other 3PL's

SUPPLEMENT TO LECTURE 5

Segmentation Model can allow the Virtual University student's enterprise to make best use of available source of suppliers as the enterprise would be able to identify the value at stake as well as the difficulty of switching suppliers.

SEGMENTATION MODEL



Outsourced Logistics Services

	NORTH AMERICA	EUROPE	ASIA-PACIFIC	LATIN AMERICA
Transportation	83%	95%	95%	90%
Warehousing	74	74	74	54
Customs Clearance and Brokerage	74	54	84	64
Forwarding	54	54	64	14
Freight Bill Audit and Payment	54	24	14	14
Shipment Consolidation	44	54	54	34
Cross-Docking	34	44	34	14
Reverse Logistics	24	44	34	34
Transportation Management	24	34	44	14
Product Labeling, Packaging, Assembly, Kitting	24	44	34	24
Supply Chain Consulting Services Provided by 3PLs	24	14	14	14
Order Entry, Processing, and Fulfillment	14	14	14	14
Fleet Management	14	24	24	34
LLP/4PL Services	14	14	4	14
Customer Service	4	4	14	14

Rationale for not using 3 PL

Virtual University Students are requested to revisit these facts; as they are still valid after 10 years down the road though some of the positions have changed especially with respect to service level commitments and logistics expertise.

	OVERALL	NORTH AMERICA	EUROPE	ASIA-PACIFIC
Logistics is a core competency at our firm	38%	51%	30%	42%
Cost reductions would not be experienced	34	34	24	24
Control over outsourced function(s) would diminish	24	44	14	24
Service level commitments would not be realized	24	24	14	24
We have more logistics expertise than 3PL providers	24	24	14	34
Logistics too important to consider outsourcing	14	14	24	14
Corporate philosophy excludes outsourcing logistics	14	14	14	14
Global capabilities of 3PLs need improvement	4	14	14	4
Inability of 3PL providers to form meaningful and trusting relationships	4	4	14	4
Issues relating to security of shipments	4	4	4	4
Source: 2006 Eleventh Annual 3PL Study, Georgia Tech and Capgemini LLC. Used with permission. *Latin America results insufficient for meaningful analysis.				

Chapter 4. Supply Chain Relationships

IT BASED SERVICES

Functionality	Currently Used	Future Needs
Warehouse/Distribution Center Management	65%	17%
Web-Enabled Communications (3PL—User)	61	28
Visibility Tools (e.g., tracking/tracing; event management)	60	29
Transportation Management (Execution)	55	21
Transportation Management (Planning)	31	32
Supplier Relationship Management (e.g., procurement; payables)	30	26
Customer Order Management	25	21
Collaboration Tools (e.g., inventory levels; production schedules)	25	35
Internet-Based Transportation/Logistics Exchanges	23	31
Yard Management	22	16
Supply Chain Planning (e.g., forecasting; inventory planning)	19	30
Customer Relationship Management	17	25
RFID (radio-frequency identification and asset tracking)	13	57

Expectation Setting to 3 PL Relation Management

Virtual University students may like to compare this set of expectations with their own expectation as well as the expectations of 3 PL service providers with respect to their customers. Hint visit the local offices of any 3 PL company in your city.

CUSTOMERS' EXPECTATIONS OF 3PL PROVIDERS	3PL PROVIDERS' EXPECTATIONS OF CUSTOMERS
- Superior service and execution (proven results and performance) - Trust, openness, and information sharing - Solution innovation and relationship reinvention - Ongoing executive-level support - Service offering aligned with customer strategy and deep industry knowledge	- Mutually beneficial, long-term relationship with company - Trust, openness, and information sharing - Dedicating the right resources at the right levels, including executives - Clearly defined service-level agreements - Fiduciary responsibility and overall fairness relative to pricing

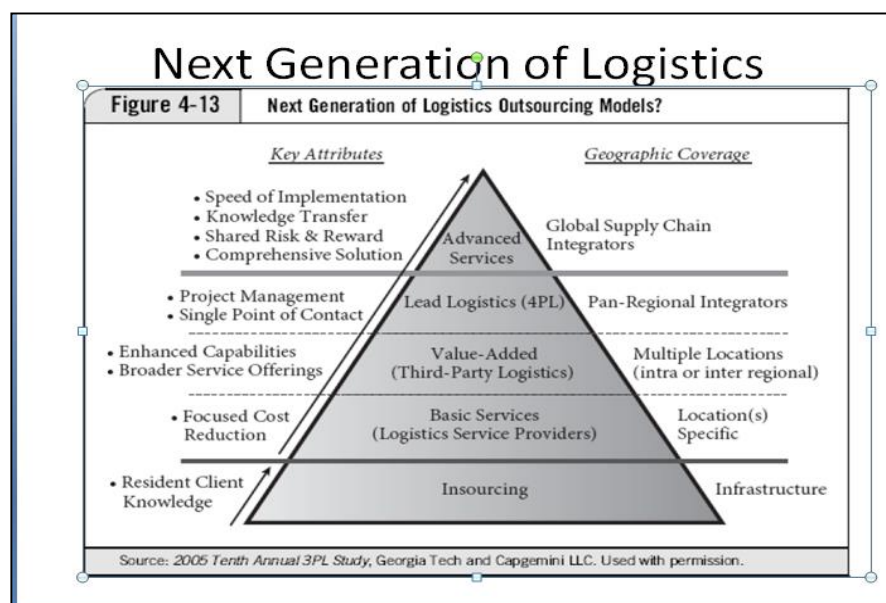
Average Customer Results from use of 3 PL

Virtual University Students can conduct this at their enterprise or within their circle of friends and family to identify with a simple questionnaire.

Table 4-8 Average Customer Results from Use of Third-Party Logistics Providers				
Cost/Benefit	North America	Western Europe	Asia-Pacific	Latin America
Logistics cost reduction	10%	11%	14%	12%
Fixed logistics asset reduction	13%	22%	22%	37%
Average order-cycle length change (days)	From 11.0 to 8.4	From 10.1 to 6.5	From 15.7 to 13.9	From 14.9 to 10.0
Service level improvement (percent "yes")	62%	67%	64%	77%
Source: 2006 Eleventh Annual 3PL Study, Georgia Tech and Capgemini LLC. Used with permission. Service-level improvement figures taken from 2005 Tenth Annual 3PL Study, Georgia Tech and Capgemini LLC. Used with permission.				

Next Generation of Logistics:

This is an important concept to look forward to especially for Supply Chain / Logistics managers of tomorrow



Future 3PL Industry Trends

Pakistan appears to have embraced a continued expansion, acquisition and consolidation of 3PL industry in line with expansion of global markets and needed services.

Continued broadening of service offerings across supply chain and broad-based business process outsourcing has led to widespread of Two-tiered relationship models both strategic as well as tactical models. As a matter of fact, an expanding range of “strategic” services offered by 3PLs and 4PLs is only possible because of ever expanding IT Capabilities. These IT capabilities have become an even greater differentiator

Increased efforts to update, enhance, and improve 3PL provider-user relationships are now the very tool for survival. Quite recently emphasis has been on relationship reinvention, mechanisms for continual improvement, and solution innovation etc.

MODULE: FUTURE TRENDS

1. The two most basic types of supply chain relationships are “vertical” (e.g., buyer-seller) and “horizontal” (e.g., parallel or cooperating).
2. In terms of intensity of involvement, inter enterprise relationships may span from transactional to relational and may take the form of vendor, partner, and strategic alliances.
3. There are six steps in the development and implementation of successful relationships. These six steps are critical to the formation and success of supply chain relationships.
4. Collaborative relationships, both vertical and horizontal, have been identified as highly useful to the achievement of long-term supply chain objectives. The “Seven Immutable (undeniable and indisputable) Laws of Collaborative Logistics” provide a framework for the development of effective supply chain relationships.
5. Third-party logistics providers may be thought of as an “external supplier that performs all or part of a company’s logistics functions.” It is desirable that these suppliers provide multiple services, and that these services are integrated in the way they are managed and delivered.
6. The several types of 3PLs are transportation-based, warehouse/distribution-based, forwarder-based, financial-based, and information-based suppliers.
7. Based on the results of a comprehensive study of users of 3PL services, over 70 percent of the enterprises studied were, to some extent, users of 3PL services.
8. User experience suggests a broad range of 3PL services utilized; the most prevalent are warehousing, outbound transportation, and freight bill payment and auditing.
9. While nonusers of 3PL services have their reasons to justify their decision, these same reasons are sometimes cited by users as justification for using a 3PL.
10. Customers have significant IT-based requirements of their 3PL providers, and they feel that the 3PLs are attaching a priority to respond to these requirements.
11. Approximately two-thirds of the customers suggest 3PL involvement in their global supply chain activities.
12. Although most customers indicate satisfaction with existing 3PL services, there is no shortage of suggestions for improvement.
13. Customers generally have high aspirations for their strategic use of 3PLs and consider their 3PLs as keys to their supply chain success.
14. There is a growing need for fourth-party logistics relationships that provide a wide range of integrative supply chain services.

LOGISTICS

Lecture 6 identifies some fundamental concepts related to Logistics; Logistics relationship with Supply Chain, some International logistical infrastructure and Logistical Performance Index

Rationale and Logic

Logistics enjoy a special status among different sectors of an economy for any country. It is important to identify the relevance and importance of Logistics. Pakistan is no different; it has government, semi government and private players working exclusively for the field of logistics. Pakistan is poised to make best use of its available resources and infrastructure. At the same time a point of caution being the lack of human resource development in this particular sector of the economy. It is envisioned by training its human resource the country can not only recognize its full potential but also evolve as a great player in the world of logistics.

Breakdown of sectors

INTRODUCTION: The Pakistan economy is now part of the integrated global economy. We are marketing and distributing numerous products in foreign nations, locating plants and other facilities internationally, and are in turn buying even more from foreign companies & countries. There are a host of factors associated with this increased globalization that touch upon almost every aspect of supply chain management.

The primary objective of this module is for the Virtual University Student to gain a broad overview of supply chain management from an international perspective. This overview will include international logistics and the role of international logistics systems in global supply chain management.

Learning Objectives

The learning objectives are covered in the form of three modules namely: -

- Module 1: Logistics basics and fundamentals,
- Module 2 International Logistics Infrastructure and
- Module 3 Logistics Performance Index

MODULE 1: LOGISTICS BASICS AND FUNDAMENTALS

This module would help the Virtual University Student gain an insight to the relevance and significance of Logistics or more pertinently how it adds value to the operation and ultimately profit to the enterprise as well as its supply chain partners and at the same time helping the customers.

At the same time this module will address the important difference between Logistics and Supply Chain. This module will also capture the definition of Logistics. This module will explain the logistics mix, goals of logistics and functions of logistics.

Students should also pay attention to the decision hierarchy and the concept of reverse logistics which is discussed in detail later in Lecture 8.

First of all, the important thing that Virtual University students must know is how logistics add value to a supply chain?

A. HOW DOES LOGISTICS ADD VALUE?

Logistics deliver value to customer through following three stages in the Supply Chain

1. **Inbound Logistics:** Include movements of all raw materials and components for processing (operations from Suppliers) to the Enterprise.
2. **In process Logistics:** Includes storage and movements of raw materials and components within the manufacturing premises as per the manufacturing schedules.
3. **Outbound Logistics:** Includes the warehousing, transportation and inventory management and distribution of finished products to customers.

The total logistics cost as percentage of the sales differs with the categories of products. With proper control, the logistical cost can be reduced by way of value addition through a combination of price, quality and service.

B. DIFFERENCE BETWEEN LOGISTICS & SUPPLY CHAIN MANAGEMENT

Supply Chain is a relationship among three tiers Suppliers, Enterprise and Customers while Logistics relates to flow of materials and information.

The efficiency and effectiveness of inventory management across the supply chain is greatly dependent on the capability of the logistics management. Also, integration of Supply Chain is not possible without the efficient **“Logistics Operations”** like warehousing, material handling, inventory control, packaging and transportation.

Supply Chain and Logistics cannot be separated from each other and form a part and parcel of customer service solution. Even for an enterprise that does not have supply chain relationship, LOGISTICS would be there

Success of Supply Chain depends on effectiveness of Logistics.

Supply Chain and Logistics can only be successful if and only if there is: -

1. Effective Coordination with Suppliers
2. Reduction of Inventory Levels
3. Speed, Reliability and Consistency in Inventory Management
4. Faster Replenishment cycle
5. Shorter Performance Cycle
6. Asset Utilization and Productivity
7. Innovation for value addition in Customer Service

Information and Communication act as enablers for integration between Supply Chain and Logistics.

Logistics today is considered to be the key to Supply Chain because of.

1. Globalization
2. Hyper Competitive Environment
3. Decrease in Profits
4. Decrease in Product Life cycle
5. Shorter Technological Life
6. Supply and Demand functions depending heavily on effective Logistical movement

Ideally, Logistics fill the gap between supply and demand

If the gap is huge the enterprise needs its supply chain management to analyze demand and adjust the execution of the supply chain either through push and pull strategies or Just in Time Philosophy.

C. DEFINITION OF LOGISTICS:

We will discuss the commonly referred definitions for Logistics along with the origin of the words from Greek and Latin Language. In Greek language, the word is “Logistikos” and in Latin language the word is “**Logisticus**”. Both the words mean the science of computing and calculating. In Urdu language the word is “رَسَد” (rasad).

Let us now consider the important definitions of Logistics as presented by American Council of Logistics Management. The new name for this organization is Institute of Supply Chain Professionals

“The process of planning, implementing, and controlling the efficient, cost effective flow and storage of raw materials, in process inventory, finished goods and related information from point of origin to point of consumption for the purpose of confirming to customers’ requirements.”

We take up another definition attributed to Marketing Professor Phillip Kotler

“Planning, implementing, and controlling the physical flows of materials and finished goods from point of origin to point of use to meet the customers need at a profit.”

We also present what Martin Christopher says about Logistics: -

“Logistics is essentially a planning process and an information based activity.”

D. LOGISTICS MIX

Martin Christopher has also presented logistics mix as well

Logistics Mix is the sum total of Information Flow, Warehousing, Inventory Control Packaging and Transportation. For the sake of clarity and easy understanding we present the Logistics Mix in the form of a table: -

Sr. #	MIX	Logic
1	Information	Information Flow takes into account Order registration, Order checking and editing, Order processing and Coordination.
2	Warehousing	Warehousing focuses on material storage, load unitizing and material handling, site selection and network planning, order picking and 2filling and dispatched documentation
3	Inventory Control	Inventory Control relates to Material Requirement Planning (MRP) and inventory level decisions for customer service objectives
4	Packaging	Packaging centers on the idea of handling the product safely and damage prevention, also for communicating critical instructions and for intermodal transportation.
5	Transportation	Transportation considers route planning, mode selection and vehicle scheduling.

Students are advised to identify and understand the logistics goals which are

Goals of Logistics

1. Product Movement
2. Information Movement
3. Time and Service
4. Cost
5. Internal Integration

Similarly, the Virtual University Students should take a minute or two to identify the functions of logistics.

Functions of Logistics

1. Order processing
2. Warehousing
3. Transportation
4. Material Handling
5. Logistics Packaging
6. Inventory control
7. Information flow

Logistics Decisions Hierarchy

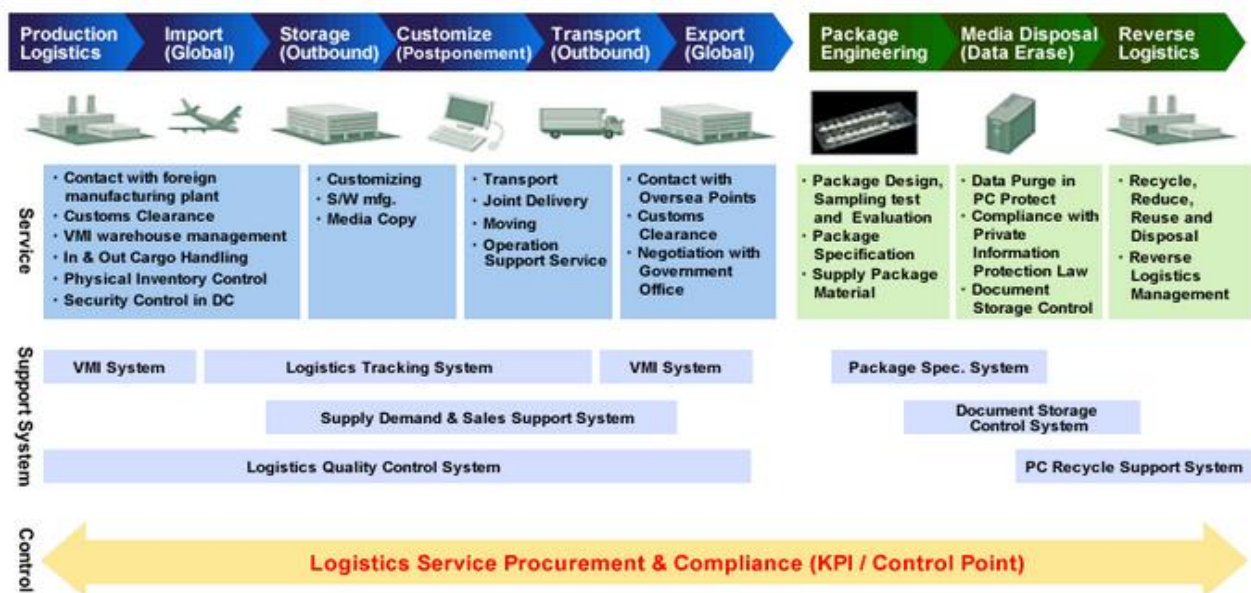
Virtual University Students are already aware of the hierarchy of decision making in a top down manner. At the top most level is the Strategic Level, the basic intent is to provide customers with the product they require. The decision making tangible output more or less depends upon the implementation.

- a. Strategic Level focuses on Customer Service
- b. Structural Level focuses on channel design and network strategy
- c. Functional Level takes into account warehousing design, transportation and materials management
- d. Implementation encompasses policy and procedures, information flow, facilities and equipment and change management

We can now represent this module in a summarized manner in the form of a pictorial by identifying the service, support systems, and controls along with production logistics, storage, customization, transportation, package, and reverse logistics for an enterprise.

A point of caution being that only that mature enterprise is best suited to exploit the various strategies like VMI, Logistics Tracking System or Package specific system.

Virtual University students try to focus on the idea of media disposal, which is one strategy most of the 4 PL companies employ to get rid of ever increasing database.



MODULE 2: INFRASTRUCTURE

The discussion here specifically focuses on what is infrastructure and what type of infrastructure are we to be aware of:

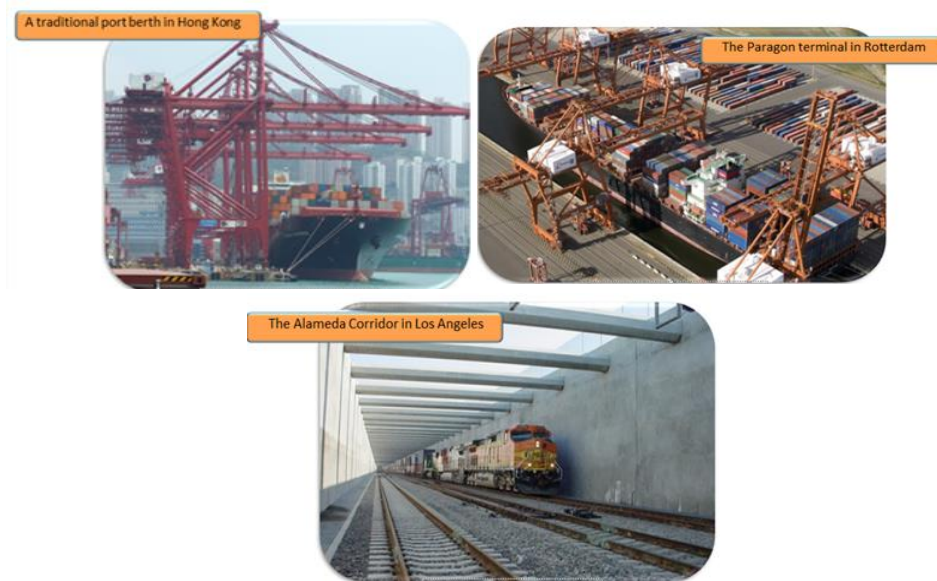
Infrastructure in logistics refers to the elements that allow goods, documents, money and information to move between businesses. Infrastructure includes the elements of Transportation, Communication, Public utilities, Banking services, Business services, Distribution channels, Court system, Intellectual property rights and Existence of standards.

Types of Infrastructure:

We now describe the various types of infrastructure using elements just mentioned above.

A. The **Transportation Infrastructure** allows goods to move efficiently within a country and between countries. This requires well-maintained seaports, airports, railways, and roads. We will discuss these important types of transportation infrastructure briefly.

1. **Port Infrastructure:** This particular type of transportation infrastructure identifies the important requirements of: -
 - i. **Water draft:** The depth of water determines the size of ships that can call.
 - ii. **Air draft:** Bridge clearances also determine which ships can call.
 - iii. **Cranes:** Post-Panamax ships need wider/taller cranes than Panamax ships.
 - iv. **Port operations:** Many ports have strong unions which limit operations.
 - v. **Space limitations:** The location of some ports limits their ability to expand.
 - vi. **Warehouse space:** Availability of reliable storage space for goods in transit.



- vii. **Connections to land-based transportation:** Ports need to have reliable access to roads and/or rail lines to keep cargo moving.
2. **Canals and Waterways Infrastructure:** Maritime transportation is dependent on the existence of reliable canals.
 - i. The Suez Canal in Egypt (North Africa) and the Panama Canal in Central America are particularly important. The current trend of building ships too large to fit through these canals is creating new challenges for the industry.
 - ii. Other key waterways include the Bosphorus Strait in Turkey which connects the Black Sea with



- iii. the Mediterranean and the Saint Lawrence Seaway in North America which connect the Great Lakes with the Atlantic Ocean.
- iv. Other canals are less frequently used, such as the Corinth Canal in Greece.

3. **Airport Infrastructure:** This particular type of transportation infrastructure identifies the significant prerequisites: -
- Runways:** The lengths of runways determine whether or not airports can handle large cargo planes, and the number of runways determines the capacity of an airport.
 - Space:** Most airports are landlocked and cannot expand.

Kai Tak airport in Hong Kong (now closed)



Chek Lap Kok airport in Hong Kong

- Hours of operation:** Noisy “cargo airports” need to be located outside of major cities if they are going to operate at night. Many airports do not meet this requirement.
 - Warehouse space:** Airports need have proper storage facilities to protect cargo from the elements.
4. **Railroad Infrastructure:** This particular type of transportation infrastructure recognizes the noteworthy fundamentals: -



Dual-gauge tracks in Belo Horizonte, Brazil



Double-stack railcars in the U.S.

- Gauge:** When railroads were first built, countries installed unique railroad track gauges to prevent rival armies from using them. Now these gauge differences do not allow trains to travel quickly between multiple countries or demand the construction of dual-gauge railroads.
 - Multi-modal:** Cargo rail transport has shifted from traditional railcars to multi-modal cars, carrying either containers or truck trailers.
 - Land bridges:** Containers are shipped from Asia to Europe through the U.S. railroad network; they arrive in a port on the west coast, and are transported to an east-coast port by rail.
5. **Road Infrastructure:** This specific type of transportation infrastructure distinguishes the notable essentials
- Quality:** The existence of high quality roadways is important to the continuous flow of goods.
 - Congestion:** In many countries traffic congestion is stifling and prevents goods from moving

Traffic congestion in Lahore, Pakistan



The Millau bridge in southern France

- Civil Engineering Structures:** Structures such as bridges and tunnels need to be built in many places in order to conveniently navigate the landscape.

B. The **Communication Infrastructure** allows businesses to communicate clearly and quickly. This requires reliable phone lines, cell phone networks, internet service, and mail delivery. The communication infrastructure involves both Telecommunication infrastructure and mail services infrastructure.

1. The **Telecommunication Infrastructure** includes: -

- i. **Land lines:** While some countries have reliable, inexpensive phone lines, others do not have good landline telecommunication networks.
- ii. **Cellular phones:** Some countries built cellular phone networks quickly, often because they did not have a good landline network. They leapfrogged the landline technology, often offering better cellular access than developed countries with reliable landline networks.
- iii. **Internet:** Access to the internet is still limited or cost prohibitive in some areas. In others, internet access is fast and inexpensive.



Telecommunication wires in India

2. The **Mail Services infrastructure** includes: -

- i. **Speed:** In some countries, mail will be delivered quickly. But in others, mail delivery can be very slow. Pakistan has regular, express and same day delivery postal services. Pakistan Posts International Parcel Service is competitive, reliable and regular and makes its delivery before then the global players.
- ii. **Reliability:** In some countries, not all mail is delivered: it is lost, abandoned, or sometimes pilfered.
- iii. **Delays:** In some countries, postal unions have a lot of power and strikes can delay the delivery of important documents.
- iv. **Competition:** Firms such as TCS, FedEx, UPS, and DHL help make up for shortcomings in this area. However, while these services are very reliable, they are generally much more expensive than the public postal services.



A high-speed postal train in France

C. The **Utilities Infrastructure** allows businesses to sustain their daily operations. This requires reliable electricity, energy (natural gas), water, and sewer services. This type of infrastructure would be considered adequate only if it is geared up to provide future demands.

- i. **Electricity:** Unreliable electricity grids and insufficient production capacity can cause blackouts or brownouts, limiting productivity.
- ii. **Water and sewer:** Access to clean water (and sewer) is fundamentally important for many manufacturing processes. It can even be an issue in more developed countries where older infrastructure is inefficient.
- iii. **Energy:** Reliable pipelines have to be available to deliver natural gas or oil products to the locations where they can be used.
- iv. **Theft:** In some areas, theft of utilities is also common, making it difficult for utility companies to earn a profit and invest in new infrastructure.



The Russia-European Union pipeline

D. The **Banking Infrastructure** allows businesses to move funds and documents quickly and reliably, both within a country and between countries. This requires a network of bank branches and well-trained bank employees. This type of infrastructure includes: -

- i. **Foreign currency payments:** The ability to quickly purchase and sell foreign currencies, either through wire transfers or currency purchases, is important to firms engaged in international trade.
- ii. **Methods of payment:** The ability of the banking partners to support alternative means of payment and to provide assistance to firms engaged in international trade is very important.

- iii. **Document exchanges:** Banks play a fundamental role in the exchange of trade documents between an exporter and an importer.
 - iv. **Branch infrastructure:** The existence of branches and/or access to Automated Teller Machines provides a higher level of service to firms.
- E. The **Business Services Infrastructure** allows businesses to find additional competent logistics help quickly. This includes freight forwarders, couriers, carriers, delivery services, packing services, and so on.
- i. **Freight forwarders:** Freight forwarders provide significant assistance to firms engaged in international trade by helping determine the best shipping alternatives.
 - ii. **Customs brokers:** Brokers provide assistance to importers when clearing Customs.
 - iii. **Couriers:** Couriers allow firms to ship documents and small parts using the “next available flight.”
 - iv. **Packing services:** Packing services allow exporters to rely on professionals to pack goods destined for export.
 - v. **Multiple other services:** Carriers, delivery services, etc. are fundamental to implement good international trade practices, and must exist for exporters to be successful.
- F. The **Distribution Infrastructure** allows businesses to find agents and distributors, to develop wholesale and retail channels, and promote their products. The distribution infrastructure is evaluated on the presence as well as performance of the following: -
- i. **Agents and distributors:** A strong network of agents and distributors allows an exporter to enter new markets and expand abroad.
 - ii. **Retail distribution:** Efficient access to consumers is important to a manufacturer of consumer goods, and is not available in all countries.
 - iii. **Advertising and promotion:** The existence of advertising agencies and media that allow promotional activities (newspapers, magazines, television, and radio) is critical to the success of many products and services.
 - iv. **Trade shows:** For most industries, trade shows present an unequalled opportunity to reach potential customers and trade partners.
- G. The **Court Infrastructure** allows businesses to settle disputes quickly and fairly. This includes not only an efficient court system, but also a network of mediators and arbitrators, and the existence of clear jurisprudence. This infrastructure actually gives comfort and provides encouragement to both national and foreign investors interested in conducting business in the country. The court infrastructure would be considered optimum if it dispenses justice and settles disputes with characteristics of speed, arbitration, mediation and fairness.
- i. **Speed:** Speedy resolution of lawsuits allows businesses to “move on.” Some countries have slow and cumbersome court processes.
 - ii. **Arbitration:** Disputes can be resolved faster through arbitration. The existence of experienced arbitrators is important to the conduct of business.
 - iii. **Mediation:** Disputes can also be resolved through mediation, and therefore a group of mediators is often useful to resolve disputes.
 - iv. **Fairness:** In some countries, the court system is perceived as corrupt or unfair, and that hinders good business relationships.
- H. The **Intellectual Property Infrastructure** allows businesses to protect their intellectual property (copyrights, patents, and trademarks) with law enforcement services intent on enforcing intellectual property laws. This is a very important type of infrastructure and takes into account both protection and international agreements.
- i. **Protection:** Businesses with intellectual property (patents, copyrights, trade secrets) want to make sure that the countries in which they operate will protect intellectual property. In some countries, competitors, police, and courts do not respect nor protect intellectual property, often considering that intellectual property laws favor big foreign corporations over the local entrepreneur trying to earn a living.
 - ii. **International Agreements:** Some countries have not ratified international agreements on intellectual property and therefore do not recognize some aspects of foreign patents and copyrights.
- I. The **Standard Infrastructure** allows businesses to determine the requirements that their products and operations must meet. This includes safety, design, and performance standards.

Countries have different standards for products and services offered for sale; these standards should be specific and clear so that they can be followed. The three universally acceptable standards include

- i. **Safety:** Safety requirements often differ from country to country. Such is the case for vehicles, appliances, and hotels, for example.
- ii. **Design:** Product designs are often dictated by local conventions (electrical supply and plugs, plumbing sizes and pressures, and telecommunication standards, for example).
- iii. **Performance:** Several countries have performance standards for products, dictating what can be called “natural,” “organic,” “premium,” and so forth.

Standards Infrastructure



PAKISTANI CONTEXT

Internationally recognized Pakistani Seaports include [Port of Gwadar](#), [Port of Karachi](#), [Port of Kati](#), [Port of Pansy](#) and [Port of Qasim](#).

Virtual University Students studying for Supply Chain Management may try to remember these details if not able to learn it. Over and above VU students are requested to write 500 words write up in their journal about the Logistics Infrastructure with very brief views about the different types of infrastructure in Pakistan in view of what was covered in this module.

GAWADAR PORT SALIENT FEATURES

<i>CURRENT PORT FACILITIES</i>	
Water location	Arabian Sea (Sea)
Anchorage depth	9.4m - 10m
Cargo pier depth	9.4m - 10m
Oil terminal depth	12.5m - 13.7m
Dry dock	Large
Harbor size	Medium
Port Area	64,000 sq-m
Container stacking area	48,278 sq-m
Reefer Cargo space	(400 points)367sq-m
Empty container stacking area	6,875 sq-m
Storage yard	28,669 sq-m
Transit shed	3,750 sq-m
Hazardous cargo storage yard	1,800 sq-m
Control tower (foot print only)	1,536 sq-m
Buoy yard	1,500 sq-m
Generator building	593 sq-m
Maintenance workshop (general)	1,440 sq-m
Vehicles Servicing Garage	450 sq-m
Security Building	65 sq-m
Common offices for GPA, Customs,	Immigration Several floors, per floor: 4 ,144 sq-m
Mosque	324 sq-m
Operations office and canteen. Per floor	1,742 sq-m
Lorry car park	1,125 sq-m
Future development area	118,575 sq-m
Oil recovery system	1 complete set
Communication	
VHF/DSC including INMARSAT-B	Complete system

Gawadar Port development would form the very basis of Pakistan China Economic Corridor and would translate into savings of cost by shortening the distance for Chinas' trade with Europe and the middle east considerably. The factual savings are yet to be seen but the saving in distance is about Europe – Western China (9535 miles) and with Middle East – Western China (10242 miles).

MODULE 3: LOGISTICS PERFORMANCE INDEX

The Global Trade Of China – Shipping Route ►



While policies and investments that enable good logistics practices help modernize the best-performing countries, logistics still lags in many developing countries. Indeed, the “**logistics gap**” evident in the first two editions of this report remains.

The tremendous importance of logistics performance for **economic growth, diversification, and poverty reduction** has long been widely recognized.

Countries have improved their logistics performance by implementing strategic and sustained interventions, mobilizing actors across traditional sector silos (storage towers) and involving the private sector. The national governments can facilitate trade through investments in both “hard” and “soft” infrastructure.

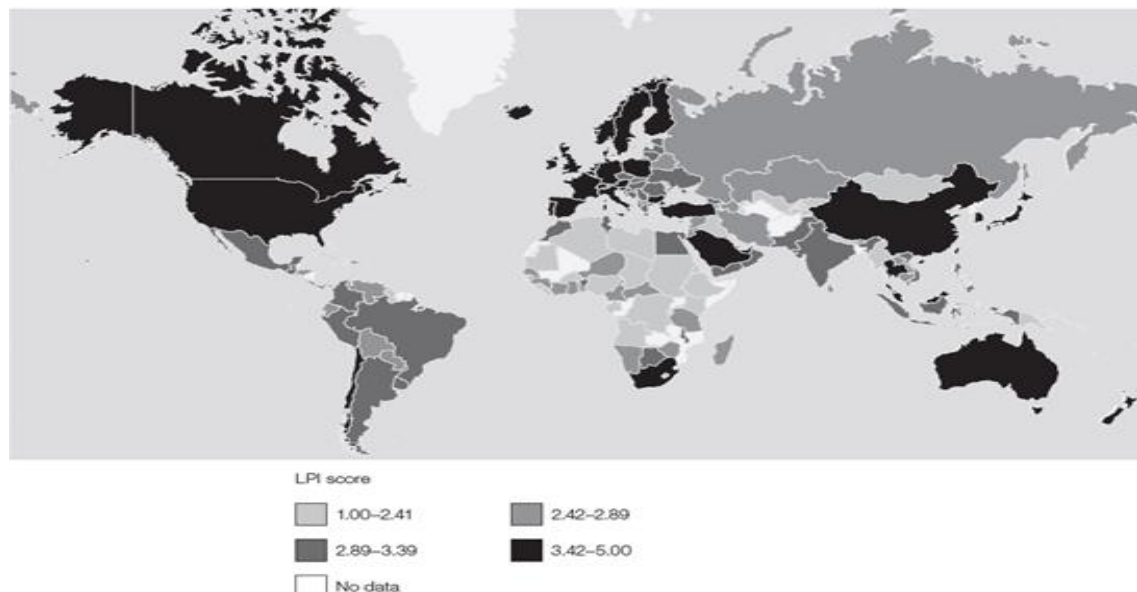
PRAGMATIC APPROACH: LPI scores should not be overvalued, a country’s LPI score is less relevant than its quintile (whether it is among the best or worst performing countries or is somewhere in the middle).

The authors use confidence intervals to examine the sensitivity of each country’s LPI score. As per 2012 report Pakistan was ranked 71 and Singapore was ranked 1 and now in 2014 it is ranked 72 and Singapore is ranked 2. Germany enjoys the 1st ranking now.

The reason why countries like Poland and Oman are ahead of Pakistan is the failure of the country on the soft infrastructure.

Human Capital limitations, policies, procedures and bureaucratic weakness all add up to depict a poor performance of the country in this particular sector.

NEW JOB FOR PAKISTANIS: *Supply Chain and Logistics is virtually ready for creating thousands of jobs which would eventually lead to industrial and technological revolution in Pakistan improving the quality of life and ensuring fulfillment of social responsibility. This becomes of prime importance with the newly announced Economic Corridor Project.*



There are many museums in the world which cover various aspects of practical logistics. These include museums of transportation, customs, packing, and industry-based logistics. However, only the following museums are fully dedicated to logistics:

General logistics:

1. Museum of Logistics (Tokyo, Japan)
2. Logistics Museum (Saint Petersburg, Russia)

Military logistics:

1. Royal Logistic Corps Museum (Surrey, England, United Kingdom)
2. The Canadian Forces Logistics Museum (Montreal, Canada)

The discussion on logistics often includes historical quotes from men who were considered top class strategists, leaders and logisticians. We are including only three just to make you realize the importance of logistics from the archives of history.

FAMOUS LOGISTICS QUOTES

1. “Gentlemen, the officer who doesn’t know his communications and supply as well as his tactics is totally useless.” Gen. George S. Patton, USA
2. “The amateurs discuss strategies, dilettantes discuss tactics: the professionals discuss logistics.” Napoleon Bonaparte
3. “My logisticians are a humorless lot ... they know if my campaign fails, they are the first ones I will slay.” Alexander the Great
4. “The supreme excellence is not to win a hundred victories. The supreme excellence is to subdue the armies of your enemies without even having to fight them.” Sun Tzu, The Art of War

END OF LECTURE 6: GIST AND CRUX:

1. *Latest concept about the origin of Logistics is that it originated in the French Language, and the word owes its origin to the French word “Logistique”. All business strategists agree that logistics add value to the supply chain.*
2. *There is a difference and distinction between Logistics and Supply Chain. Logistics is the process of planning, implementing, and controlling the effective and efficient flow of goods and services from the point of origin to the point of consumption.*
3. *Logistics Infrastructure can make or break not only the supply chain intent and performance of a country and can seriously question the incentives that country can provide to both business logistics as well as its own military logistics.*
4. *Logistics Performance Index: The tremendous importance of logistics performance for economic growth, diversification, and poverty reduction has long been widely recognized. It has been only since 2007 that World Bank has taken an initiative to conduct a survey that identifies the placement of a country with respect to its Logistics Performance.*
5. *Logistics has increasingly become important for sustainability.*

CONTRACT MANAGEMENT



Modules

- Module 1: What you already know, What is a contract and What is Contract Management.
- Module 2: Types of International Contract.
- Module 3: Elements of a contract.
- Module 4: Why Contract Management is important for Supply Chain Management.
- Module 5: Incoterms 2010.



WHAT IS A CONTRACT

- **Contracts are the foundation of nearly all business relationships.**



Current Situation

- **Manual processes and fragmented business systems result in:**
 - **Increased costs**
 - **Poor collaboration**
 - **Poor compliance**



Current Situation

- **Overcharging by suppliers**
- **Diminished negotiation leverage**
- **Missed rebates and savings opportunities**
- **Lost revenue opportunities**
- **Dissatisfied and lost customers**



Inadequate Compliance Monitoring

- **Maverick buying**
- **Pricing variance and rebates**
- **Evergreen renewals**
- **Policy and regulatory non-compliance**



Contract

- **A contract is an agreement having a lawful object entered into voluntarily by two or more parties, each of whom intends to create one or more legal obligations between them.**



Contract

- **A contract is a legally enforceable promise or undertaking that something will or will not occur.**



Pakistan Contract Law 1872

- **The general law of contract in Pakistan is contained in the Contract Act 1872. English decision's (where relevant) are also cited in the courts.**



Pakistan Contract Law 1872

- **The Act defines “contract” as an agreement enforceable by law. The essentials of a (valid) contract are:**
 - (a) Intention to create a contract**
 - (b) Offer and acceptance**

Pakistan Contract Law 1872

- **(c) Consideration**
- **(d) Capacity to enter into a contract**
- **(e) Free consent of the parties**
- **(f) Lawful object of the agreement**



Steps in Contract Management

- **The process of managing contracts is known as Contract Management. The process involves 8 steps namely:**
- **1.Orientation**
- **2.Plan**
- **3.Personnel**



Steps in Contract Management

- **4.Process**
- **5.Training**
- **6.Standards**
- **7.Measurements**
- **8.Auditing**



Steps in Contract Management

1.Orientation

- **A meeting should be held with the department that is incharge of the contract management work and those impacted by the contract management process.**



Steps in Contract Management

2. Plan

- **A comprehensive plan should be developed to implement a contract management system.**



Steps in Contract Management

3. Personnel

- **One person in the organization should be assigned the responsibility for contract management. This often is the Contracts/ Supply Chain/ purchasing/manager.**



Steps in Contract Management

4.Process

- **Documenting a contract management process assures that everyone in the company handles contracts in the same way.**



Steps in Contract Management

5.Training

- **Members of the department responsible for contract management should be trained in the company's contract management process, terms used and guidelines for the function.**



Steps in Contract Management

- 6. Standards
- **Develop contract management standards.**
- **Standards should include maintaining accurate documentation for the start and end date of a contract.**



Steps in Contract Management

7.Measurement

- **Establish metrics to measure and assess the effectiveness of the contract management function within an organization.**



Steps in Contract Management

8.Auditing

- **The contract management function should be audited periodically using an audit checklist for reference.**



Contract Management Software

- **A typical Contract management software includes the 9th step in the contract management as “RENEWAL”.**



TYPES OF INTERNATIONAL CONTRACT



1. *Lex Mercatoria*
2. International Sales Contracts
3. Agency vs. Distributorship
4. Distribution Contracts
5. Termination
6. Arbitration
7. Mediation



ELEMENTS OF A CONTRACT



Contract Elements

Contract
Language

Good Faith

Force Majeure

Scope of
Appointment

Territory

Corporate
Accounts

Term of
Appointment

Choice Law

Choice of
Form or
Venue

Arbitration
Clause

Mediation
Clause

Profitability or
Commission



RELEVANCE AND IMPORTANCE OF CONTRACT MANAGEMENT



Importance of Contract Management

- In considering the challenges around contracts, Louis Brown, the father of preventive law, who wrote the now-famous Manual of Preventive Law, noted the following:
 - **It usually costs less to avoid getting into trouble than to pay for getting out of trouble.**



INCOTERMS

CONTRACT MANAGEMENT

Lecture 7 is primarily focused on Contracts and management of contracts. Contract management directly as well as indirectly relates to supply chain management. Contract is a legal document that spells out the mutually agreed upon goals and objectives between the enterprise as well as the supply chain partners. Incidentally these mutually agreed goals are actually mission critical objectives not only for the enterprise but also for the distributors, retailers and the suppliers. This lecture aims to equip the virtual university student in the cognitive, affective and psychomotor domain and covers critical objectives in 5 modules. Ideally after completing these five modules, the Virtual University student would be more conscientious towards the importance of contract management in the effective administration of the supply chain. Effective contract management allows a SC manager to enhance uniformity along the entire supply chain. Contract management is an evolving science as it focuses on contracts which are continuously being modified, fine-tuned or refined to ensure that none of the three critical interfaces of supply chain feel that they are losing profits. Also contracts should incorporate an important factor of flexibility that ensures that any change in environmental condition does not affect the benefits of any of the three critical supply chain interfaces.

Effective management of contracts requires the primary responsibility of boundary identification or scope of the contract. Scope refers to that boundary or simply what is included in the contract and what is excluded. Many contracts fall a prey to scope creep that is responsibilities or deliverables not specified in the documented contract become a part of the implementation or the practical side of the contract.

The five modules are as follows:

Module 1: What is a contract and what is Contract Management: Business students normally have access to documents called contracts at their work place or even the document they signed at the time of enrollment at their respective institution.

Module 2: Types of International Contract: Supply Chain boundaries normally extend beyond the physical boundaries of a country or a region, Pakistan is no exception. This module is aimed to ensure that the contract managers or supply chain managers working on contracts is aware of the important terms that help in the governance and implementation of operations of a supply chain.

Module 3: Elements of a contract: This module provides the student to gather all the pertinent technical knowledge jargon that is used in different organizations of the world. Sometimes a term used by one company may not be used with the same relevance at the other company which has been joined by a contract. This would allow any professional working as a supply chain manager process to be at the same level of awareness with respect to the scope of the contract be it the supply chain manager itself or the purchasing manager for that matter.

Module 4: Why Contract Management is important for Supply Chain Management. This module allows overcoming the inertia of ignoring the documented contract agreement. We often see organizations putting away their documented contracts either in archives or their info centers and only referred to on completion of a certain mile stone or entire completion. This defeatist mindset can actually cause the profits of the entire supply chain to be seriously compromised and often leading the entire supply chain to fail or crash. Unfortunately, a perspective found globally is that most of the enterprises face the situation that their managers do not refer to the details of the contract.

Module 5: Inco terms 2010

Contract Management: Rationale and Logic

The fundamental rationale behind contract management within the supply chain management framework is to ensure the effective, efficient and cost-effective delivery of contracting and procurement services, while complying with legal, regulatory and ethical obligations set forth by the governments, third party regulatory and international governing bodies. After completing this lecture, the virtual university students would be able to carry out a basic if not a comprehensive audit of the contract management process at their enterprise also they can set up a monitoring system to ensure that the contract management process complies with the inter-organizational agreed Service Level Agreements (SLAs) and agreed goals.

MODULE 1: WHAT IS A CONTRACT?

Most of the virtual University students already know that “Contracts” are the foundation of nearly all business relationships. Various studies indicate that about 80% of business-to-business transactions are governed by contractual agreements.

The typical Fortune 1000 company maintains between 20,000 and 40,000 active contracts. If Billions of Rupees are being lost by government of Pakistan to IPPS every year the situation is not that different in other countries and as a common observation, companies are losing billions of dollars each year. The reason why IPPS are having an upper hand is primarily because of mishandling of the contract both at the time of development of the contract as well as at the implementation. It goes without saying that the absence of the audit of these IPP contracts is also causing financial loss to the country.

Business consultants and academia identify the reasons due to which businesses and government organization incur losses. Some of the common reasons are contract leakage, unredeemed rebates, inefficient processes and suboptimal contract terms

CHALLENGES

There are certain common Challenges observed in the domain of contract management. Companies lack formalized contract management procedures and controls for creating and managing agreements throughout the contract lifecycle. The majority of organizations manage their contracts in a fragmented or ad-hoc manner. Most large companies manage their contracts by division rather than on an enterprise-wide basis. Fragmented procedures result in insufficient collaboration during the contract-creation process, limited visibility into active contracts, and a higher degree of risk.

CURRENT SITUATION

The current situation is sadly more or less having a direct negative impact from “**The Invisible Contract**”. This term refers to “where is the contract or more appropriately where it has been placed”. More than 80% of companies report that even locating a contract is difficult. **AGAIN THIS IS A GENERIC COMMENT NOT AIMED AT THE PAKISTANI CONTEXT.**

Many customer and supplier contracts are stored in filing cabinets or on the hard drives of individual (and often inaccessible) Personal Computers across the enterprise. Manual processes and fragmented business systems result in:

1. Increased costs
2. Poor collaboration
3. Poor compliance
4. Current Situation
5. Overcharging by suppliers
6. Diminished negotiation leverage
7. Missed rebates and savings opportunities
8. Lost revenue opportunities
9. Dissatisfied and lost customers
10. Inadequate Compliance Monitoring
11. Compliance is the most challenging aspect of the contract lifecycle
12. Inadequate Compliance Monitoring

Most companies only monitor compliance on a monthly, quarterly or ad hoc basis, exposing them to cost, performance, and regulatory risk, including:

1. Inadequate Compliance Monitoring
2. Maverick buying
3. Pricing variance and rebates
4. Evergreen renewals
5. Policy and regulatory non-compliance

We are now in a position to answer the question “WHAT IS A CONTRACT?”

A contract is **an agreement** having a lawful object entered into voluntarily by two or more parties (would be governed by laws related to party), each of whom intends to create one or more legal obligations between them.

The elements of a contract are "**offer**" and "**acceptance**" by "**competent persons**", having legal capacity, who exchanges "**consideration**" to create "**mutuality of obligation**."

Contract should carry a proof of some or all of these elements may be done in writing, though contracts may be made entirely orally or by conduct. The remedy for breach of contract can be "damages" in the form of compensation of money or **specific performance** enforced through an **injunction**.

Thus a contract is a legally enforceable promise or undertaking that something will or will not occur. The word promise can be used as a legal synonym for contract, although care is required as a promise may not have the full standing of a contract, as when it is an agreement without **consideration**.

Supply Chain Managers while handling Contracts **should remember** that:

1. Both of these remedies award the party at loss the "benefit of the bargain" or **expectation damages**, which are greater than mere **reliance damages**, as in promissory estoppel. The parties may be natural persons or **juristic persons**
2. Contract law varies greatly from one jurisdiction to another, including differences in **common law** compared to **civil law**, the impact of **received law**, particularly from England in common law countries, and of law codified in regional legislation

PAKISTAN CONTRACT LAW 1872

The general law of contract in Pakistan is contained in the Contract Act 1872. English decision's (where relevant) are also cited in the courts. The Act defines "Contract" as an agreement enforceable by law. The essentials of a (valid) contract are:

- (a) Intention to create a contract;
- (b) Offer and acceptance;
- (c) Consideration;
- (d) Capacity to enter into a contract;
- (e) Free consent of the parties;
- (f) Lawful object of the agreement;

Writing is not essential for the validity of a contract, except where a specific statutory provision requires writing. An arbitration clause must be in writing.

MODULE 1 B: WHAT IS CONTRACT MANAGEMENT (STEPS IN CONTRACT MANAGEMENT)

This module should be more or less used to answer the important Steps in Contract Management. The process of managing contracts is known as "**Contract Management**". The process involves 8 steps, which are, Orientation, Plan, Personnel, Process, Training, Standards, Measurements and Auditing.

1. **Orientation:** A meeting should be held with the department that is in charge of the contract management work and those impacted by the contract management process. At the meeting, the reason for contract management should be explained along with the fact that the program is fully endorsed by senior management. Where feasible, a member of senior management should lead the meeting.
2. **Plan:** A comprehensive plan should be developed to implement a contract management system. This would ensure that all affected departments in an organization focus on delivering a cost-effective approach to managing contracts.
3. **Personnel:** One person in the organization should be assigned the responsibility for contract management. This often is the Contracts/ Supply Chain/ purchasing/manager. A project plan for implementing a contract

management system should be developed by someone assigned responsibility for seeing that a system gets implemented correctly and on time and on budget. The plan should designate tasks to be accomplished, who is responsible for the task and the targeted completion date.

4. **Process:** Documenting a contract management process assures that everyone in the company handles contracts in the same way. Specify a work flow, what person or department is responsible for completing each step in the work flow and how work flow exceptions are handled.

5. **Training:** Members of the department responsible for contract management should be trained in the company's contract management process, terms used and guidelines for the function.

6. **Standards:** Develop contract management standards. Standards should include maintaining accurate documentation for the start and end date of a contract. Keep complete contract addendums, noting any changes in the contractual arrangement, such as renewal of a service contract.

7. **Measurement:** Establish metrics to measure and assess the effectiveness of the contract management function within an organization. Measurement metrics would include accuracy in contract preparation and time to retrieve and reference contracts when required.

8. **Auditing:** The contract management function should be audited periodically using an audit checklist for reference. The checklist should be specific what to audit and specifically what to inspect with expected results that are in compliance with contract audit standards.

CONTRACT MANAGEMENT SOFTWARE APPLICATION

Typical Contract management software includes the 9th step in the contract management as “**RENEWAL**”, which often goes unnoticed in the manual Contract Management Process and acts as a matter of pain point for Supply Chain Partners in general and Supply Chain Manager in particular.

MODULE 2: TYPES OF INTERNATIONAL CONTRACT:

Some of the more important types of International Contracts that should a Supply Chain Manager should know include:

1. Lex Mercatoria
2. International Sales Contracts
3. Agency vs. Distributorship
4. Distribution Contracts
5. Termination
6. Arbitration
7. Mediation

Virtual University Students are requested to pay special attention to this concept by going through the International Contract Manual. The Manual is divided into three parts; the first part covers common and important contract terms, and the second and the third parts cover the relevant laws of a number of selected countries and the United Nations Convention on Contracts for the International Sale of Goods (CISG). Also students can identify the level of expertise in contract management for any enterprise by following the criterion for Contract Management Maturity Model (CMMM)

MODULE 3: ELEMENTS OF A CONTRACT

Elements of a Contract: There are significant differences in the specific wording and details of contracts employed by supply managers for sourcing products, processes, and services, the structures of contracts used in purchasing products and services are fairly standard and have a number of common attribute. Although, there are significant differences in the specific wording and details of contracts, employed by supply managers for sourcing products, processes, and services. In general, these attributes are established by an enterprise's legal counsel and then are modified for different types of suppliers, products, and services. The important point to remember is that contracts establish the terms and conditions by which two parties agree to conduct business. They define the type of relationship and pave the way for ensuring that both parties come away with mutual benefits.

A contract typically begins with an introduction of the parties who will be engaged in the contract. For example, it might begin with the following:

THIS AGREEMENT IS MADE this day of 2016, BETWEEN ABC COMPANY LIMITED, a company registered in Pakistan and having its registered office at 44 ABC Street, University Road, Quetta (the “**Buyer**”) and

XYZ, INC., a corporation duly organized under the laws of the State of Sharjah, of United Arab Emirates and having its principal place of business at 123 Cricket Road, Hockey Plaza, Dubai, UAE (The “**Supplier**”).

Following the introduction, there are several numbered sections (called “**Clauses**”) that describe the different sets of conditions that the parties agree to follow in their conduct of their business relationship. These clauses in the first part of the contract may also refer to a series of “**Schedules**” that provide specific details behind the clauses.

These schedules may provide additional information on the method of manufacture, the statement of work, how to calculate specific measures, health and safety requirements, pricing schedules, and other important details. The schedules (which are typically contained in the appendices at the end of the contract) are where the real “meat” of the negotiations has often taken place. The following example of a specific contract between two companies (a large Fortune 500 company and a mid-sized service supplier) is used to illustrate typical contract structures with clauses and schedules.

Virtual University Student, please bear in mind that there will be major variations in the details of a contract, but the contract structure that follows is fairly representative of what most supply management students will use in contract negotiations.

1. Definitions. This section defines all of the important terms contained within the contract and is important so everyone understands exactly what each term means. It is better to get this clear up front, to avoid confusion later on. Some of the typical terms might include the product or service definition and terms such as raw materials, purchase orders (POs), on-time delivery, and price. Although these might seem obvious to some people, if it is in writing, it is clear.

2. Scope of Agreement. This section defines what is in and out of scope. This might include the geographical limitations, the validity or invalidity of prior contracts, preferential treatment by the supplier, or other elements.

3. Purchase Orders. This section outlines the relationship between the Agreement and any other purchase orders issued by the company to the supplier. For example, it might state that “any Purchase Order for Products submitted by a Buyer affiliate during the term of this Agreement shall be deemed to be on the terms and conditions set out in this Agreement.” This also stipulates what happens if a purchase order is cancelled and what happens if terms conflict between the PO and the Agreement, and which document supersedes which.

4. Supply and Delivery. This clause specifies the terms for supply and delivery of the product or service. For instance, if there is a 10-day lead time stipulated between order placement and delivery, what happens if the supplier does not deliver in time? This clause may also reference an appendix that provides additional details on how delivery is measured, what is considered on-time delivery, what are the penalties for late delivery, and other details.

5. Specifications, Quality, and Health, Safety, Environment. This clause describes method of manufacture and quality requirements, and may include language specific to terms of quality (e.g., “The Products delivered under this Agreement shall be manufactured in conformity with any mandatory requirements of applicable law in the country of origin or supply and any international standards relevant to such Products.”). Charges for delivery of off-specification products or services may also be identified in the appendix. For services, a Statement of Work contained in the appendix will provide details of the exact scope of work to be performed and the service quality expectations. Finally, elements associated with safety, health, and environmental standards are identified in terms of expectations from the supplier.

6. Payment. This section may specify terms such as “current price,” “prior price,” and other criteria that determine how or if prices will be adjusted over the course of the contract. Again, details of how often prices

will change and any indices associated with pricing change agreements or related to cost-savings sharing are identified in a schedule in the appendix.

7. Liability. This can sometimes be a contentious clause and may often contain language such as “The Supplier shall assume entire responsibility for and shall defend, indemnify and hold Buyer and Buyer’s Affiliates harmless against all losses, liabilities, costs and expenses arising directly or indirectly out of or in connection with this Agreement or any Purchase Order and arising from injury or damage to the property of the Supplier.” The clause generally specifies who is responsible if there are injuries or damage, over the course of the contract, and any damages to be paid. This may also include insurance requirements and sub-supplier issues as they arise.

8. Force Majeure. This clause describes the course of events that occurs if there are unforeseen events such as earthquakes or hurricanes that prevent a supplier from fulfilling its obligations to the buyer. Generally, this clause includes language such as “The party whose performance of this Agreement is so affected shall notify the other party as soon as is reasonably practicable giving the full relevant particulars and shall use its reasonable efforts to remedy the situation immediately.”

9. Effective Date and Termination. This clause states when the contract becomes effective, when it terminates, and any agreements relating to conditions when the contract can be extended beyond the termination date. It also stipulates whether either party has the ability to terminate the contract at any time, and how much advance notice must be given.

10. Intellectual Property. This clause specifies conditions regarding who owns any intellectual property (IP) that comes out of the agreement, and who owns what IP going into the agreement. If an innovation comes out of the agreement, there may also be stipulations as to who owns the “residuals” of that IP.

11. Assignment and Contracting. This clause stipulates whether the supplier can assign its rights described in the agreement to another party, and whether subcontracting is permissible.

12. Technology Improvements. If the buyer becomes aware of any technology or cost improvements of other products in the market, this section may specify whether they can share this information with the supplier, and how the supplier should act on this information.

13. Most Favored Customer. This clause states whether the buyer can expect to receive preferential status over the supplier’s other customers. This is not only difficult to measure, but also difficult to enforce, so it is not always used in practice.

14. Confidentiality. This clause ensures that all information, technology, and so on shared between the parties’ remains confidential and is not shared with other customers or suppliers.

15. Statistics. This clause provides guidelines regarding what type of reporting statistics and measures the supplier must provide to the buyer on a regular basis, defined clearly. Additional details may be in a schedule in the appendix.

16. Key Performance Indicators and Compensation. This clause provides specific details on how the supplier’s performance will be measured and if any compensation will be awarded by the supplier to the buyer if these defined levels of performance are not maintained. For example, if delivery falls below 90%, there may be a penalty the supplier will need to pay.

17. Notices. This clause establishes where bills, invoices, notices, and other documents should be sent, as well as the key contact person at the buying and supplying company to whom to direct all questions and issues concerning the relationship.

18. Severability. This clause describes how an issue will be addressed if a portion of the agreement is void or unenforceable, and which court of law will resolve the difference.

19. Third-Party Rights. This clause stipulates that any benefits attributed to a third party (other than the buyer and supplier) identified in the contract must be enforced. For example, if there is a bank that handles transactions between the two and charges a fee, this fee must be paid by the parties according to the agreement.

20. Free Trade Areas. This clause identifies any free trade issues and benefits, and how to share the benefits.

21. Minority- or Women-Owned Business Enterprises. This clause stipulates that the supplier agrees to use its best efforts to support MWBE (Minority- and Women-Owned Business Enterprises) purchasing or that a certain percentage of its business must be awarded to MWBE enterprises.

22. General. Any other general business principles.

23. Governing Law. This clause stipulates the court of law where any disputes will be settled. This clause contains language such as “Mandatory application of local law or a statement to the contrary in the relevant Purchase Order, which is agreed to by the Supplier, shall be exclusively governed by the laws of Pakistan.”

This clause may also stipulate the use of arbitration or other forms of conflict resolution (described later in this chapter).

24. Signatures

IN WITNESS WHEREOF this Agreement has been duly executed by the parties hereto, the day and year first above written.

ABC COMPANY LIMITED

By: _____

Name: _____

Title: _____

XYZ, INC.

By: _____

Name: _____

Title: _____

An example of schedules that may be used in the appendices include the following:

Schedule 1: Product/process/service specifications, statement of work, or scope of work

Schedule 2: Prices and price adjustment mechanisms

Schedule 3: Health, safety, and environment guidelines and requirements

Schedule 4: Packaging materials

Schedule 5: Approved method of manufacture, delivery, or service deployment

Schedule 6: Delivery targets and lead times

Schedule 7: Supplier’s hours of operation

Schedule 8: Storage and inventory control

The Contract Elements captured above may be supplemented and complemented by some other important Contract Elements like good faith, scope of appointment, territory, corporate accounts, and term of appointment, choice of law, choice of forum or venue, arbitration, mediation, profitability or commission, termination.

(Module prepared after taking into account the textbook “Purchasing and Supply Chain Management”, **HANFIELD & GUINIPERO** as the primary Source)

MODULE 4: RELEVANCE & IMPORTANCE OF CONTRACT MANAGEMENT

The Contract Management Modules are designed for individuals who are involved in contract administration or procurement activities in the private, public, and not-for-profit sector Supply Chains. These modules provide a foundation for understanding both the strategic and operational aspects of the contract management function.

IMPORTANCE OF CONTRACT MANAGEMENT

Effective Contract Management is one of the prime instruments of managing supply chain effectively. Unfortunately, instead of being a solution the poor and ineffective contract management becomes a source of problems for the supply chain. Many companies seek to resolve issues through a process known as “preventive contracting,” which involves spending more time in the initial contracting stages to fully understand stakeholder requirements, expectations, and repeated communication of expectations, in order to gain a full understanding of elements.

The importance of contract management is not limited to contract managers or supply chain managers rather it influences decision makings of insurers and parties to international trade. Enterprises can achieve competitive advantage resulting from a mature contracting process.

Organizations that experience protracted contract development and negotiation cycles, improper contract approvals, limited contract visibility and control, normally end up having an inability to ensure supplier compliance

with contract terms.¹ The use of maturity models has emerged as a successful method for measuring and improving organizational critical core processes. This presentation will discuss a case study on the development and application of the Contract Management Maturity Model (CMMM) as a method for assessing and improving an organization’s contract management

Another important element is the need for flexibility in contractual terms and clauses, in order to facilitate mutual benefit for the sustenance of the relationship, in considering the challenges around contracts, **Louis Brown, the father of preventive law**, who wrote the now-famous Manual of Preventive Law, noted the following:

It usually costs less to avoid getting into trouble than to pay for getting out of trouble.

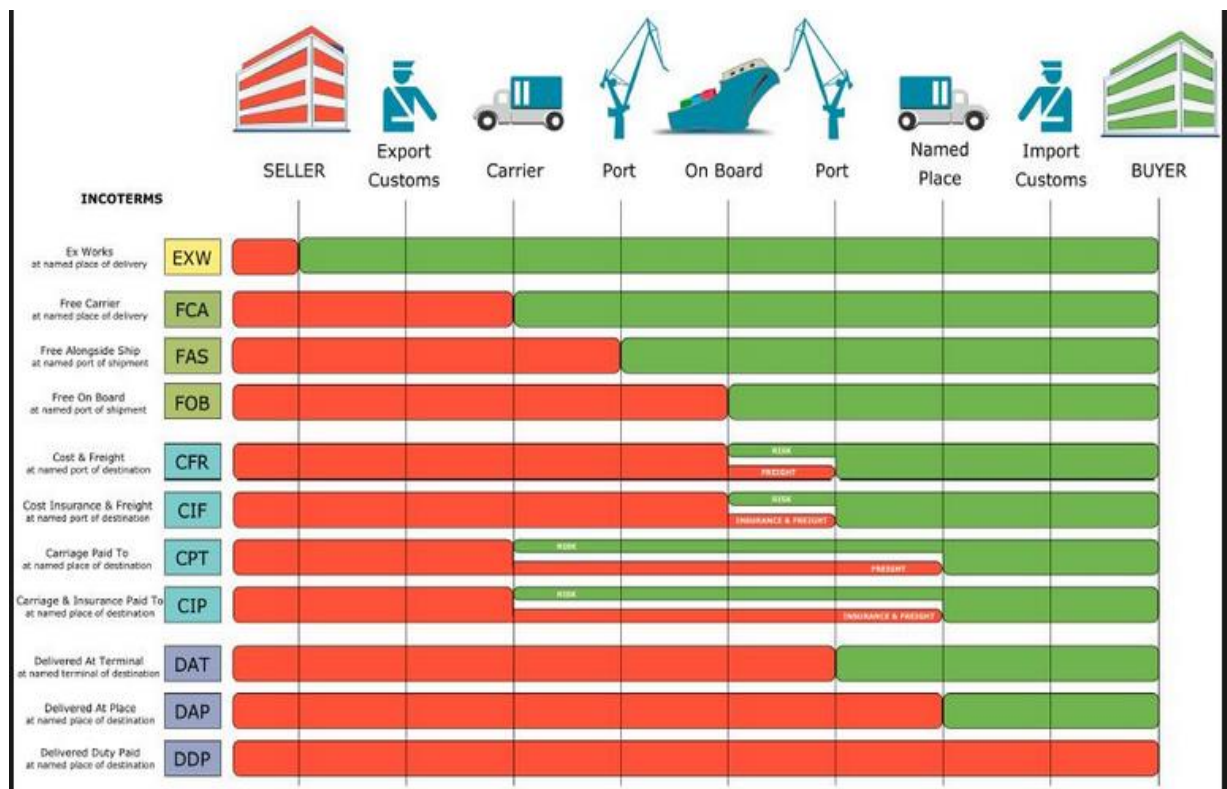
MODULE 5: INCOTERMS 2010

The **Incoterms rules or International Commercial** terms are a series of pre-defined commercial terms published by the **International Chamber of Commerce (ICC)** that are widely used in **International commercial transactions**.

1. A series of three-letter trade terms related to common contractual sales practices, the Incoterms rules are intended primarily to clearly communicate the tasks, costs, and risks associated with the transportation and delivery of goods.
2. The Incoterms rules genesis can be traced to 1921, with the formation of the idea by the International Chamber of Commerce.
3. In 1936, the first set of the Incoterms rules was published. The first set remained in use for almost 20 years, before the second publication in 1953.
4. Additional amendments and expansions followed in 1967, 1976, 1980, 1990, and 2000.
5. The eighth published set of pre-defined terms, *Incoterms 2010* defines 11 rules, reducing the 13 used in Incoterms 2000 by introducing two new rules ("Delivered at Terminal", DAT; "Delivered at Place", DAP) that replace four rules of the prior version ("Delivered at Frontier", DAF; "Delivered Ex Ship", DES; "Delivered Ex Quay", DEQ; "Delivered Duty Unpaid", DDU).

In the prior version, the rules were divided into four categories, but the 11 pre-defined terms of *Incoterms 2010* are subdivided into two categories based only on method of delivery.

The larger group of seven rules applies regardless of the method of transport, with the smaller group of four being applicable only to sales that solely involve transportation over water, that define the respective roles of the buyer and seller in the arrangement of transportation and other responsibilities and clarify when the ownership of the merchandise takes place. They are used in conjunction with a sales agreement or other method of transacting the sale.



The red color represents the “Seller” while green reflects the “Buyer” obligations respectively.

The success of Trade and commerce in Japan is attributed to effective and efficient Contract Management a philosophy if implemented in true spirit would do wonders for Pakistan in the comity of nations with respect to Supply Chain Management

END OF LECTURE 7: GIST AND CRUX:

1. Successful Contract Management is synonymous with Successful Supply Chain Management. Most of the organizations fall a victim to the gap between contract management and actual supply chain management practice. With the availability of continuous monitoring software, contract management has become relatively acceptable and fulfills the contractual obligation of all parties.
2. Supply Chain Managers who are unable to make judicious of International Contracts often force their enterprise as well as supply chain partners to incur losses. Contract Manuals are updated on a periodic basis with new regulatory requirements identified for various regions at the International level.
3. Elements of a contract are subject to periodic review by a cross functional team comprising of supply chain managers, marketing, finance, accounts, operations and legal managers. A lot of contractual disputes can be minimized if not avoided if the legal team pays due attention to the variation of terms and its interpretation between the contractual parties.
4. The importance of Contract management for Supply Chain management can be gauged by the successful completion of various projects and milestones as identified by the supply chain partners.
5. The Incoterms rules should be made available to the entire supply chain participants. Incoterms 2010 and subsequently Incoterms 2015 have been incorporated in contracts for the sale of goods and services globally. Incoterms provide rules and guidance to importers, exporters, lawyers, transporters, insurers and students of international trade. Enterprises can achieve competitive advantage resulting from a mature contracting process. The number of contracts/agreements/memorandum of understanding between China and Pakistan would be a test of professional excellence of contract managers

REVERSE SUPPLY CHAIN**Learning Objectives**

Module 1: Forward and Reverse Supply Chain

Module 2: Need/ Scope of Reverse Supply Chain

Module 3: Design of Reverse Supply Chain

Module 4: Strategic Points of Reverse Supply Chain

Module 5: Advantages and Challenges of Reverse Supply Chain

Module 6: Pakistani Context –Gadding Seaport

Rationale and Logic

The design of supply chain is the norm of supply chain engineers on the advice of supply chain managers and supply chain consultants. The design is subservient to the need and scope of both forward and reverse supply chains. There are certain advantages which if not availed can lead to unaddressed issues and thus profits are compromised. This lecture ensures that the Virtual University Student is able to understand the scope, the advantages as well as the challenges pertaining to forward and reverse supply chains.

MODULE 1: Forward and Reverse Supply Chain

Customers often feel that their needs have not been fulfilled from the purchased product and thus return that product. World class Automobile manufacturers/ Electronic consumers have recalled products in the past to ensure that their brand image and name is protected. For this they use Reverse Supply Chain Infrastructure. The reverse supply chain is used to allow forward channel participants such as whole sellers and retailers to reduce risk of buying products that are slow moving. The resellers are allowed to return the goods within a reasonable time period using finely tuned reverse supply Chain which is in place. For this they use Reverse Supply Chain Infrastructure

The examples are Pharmaceuticals, Consumer Electronics and Automobiles. According to regulatory compliance requirements a lot of companies often have to have relevant interfaces like Collection, Inspection, Recycle and Waste Disposal. Reverse Supply Chain Infrastructure may be used for Reuse/Rework, Warranty Claims & Settlements and Returns

BULL WHIP EFFECT RISK

In certain industries, goods are distributed to downstream members in the supply chain with the understanding that the goods may be returned for credit if they are not sold. Newspapers and magazines serve as examples. This acts as an incentive for downstream members to carry more stock, because the risk of obsolescence is borne by the upstream supply chain members.

However, there is also a distinct risk attached to this logistics concept. The downstream member in the supply chain might exploit the situation by ordering more stock than is required and returning large volumes.

In this way, the downstream partner is able to offer high level of service without carrying the risks associated with large inventories. The supplier effectively finances the inventory for the downstream member. It is therefore important to analyze customers' accounts for hidden costs.

REFUSAL OF THE PRODUCTS IN THE CASH ON DELIVERY PROCESS (COD)

In case of e-commerce business, many websites offer the flexibility of Cash on Delivery (COD) to the customer. Sometimes customer refuses the product at the time of delivery, as there is no commitment to take the product. Then the logistics service providers follow the process of "Reverse logistics" on the refused cargo. This is quite popular in Pakistan as well, although shopping networks have complained that the courier services either just leave the product at the doorstep or there are thefts and pilferages leading to supply chain profits being compromised.

It is also known as **Return to Origin (RTO)**. In this process the e-commerce company adds the refused cargo to its inventory stock again, after proper quality checks as per the company's rules.

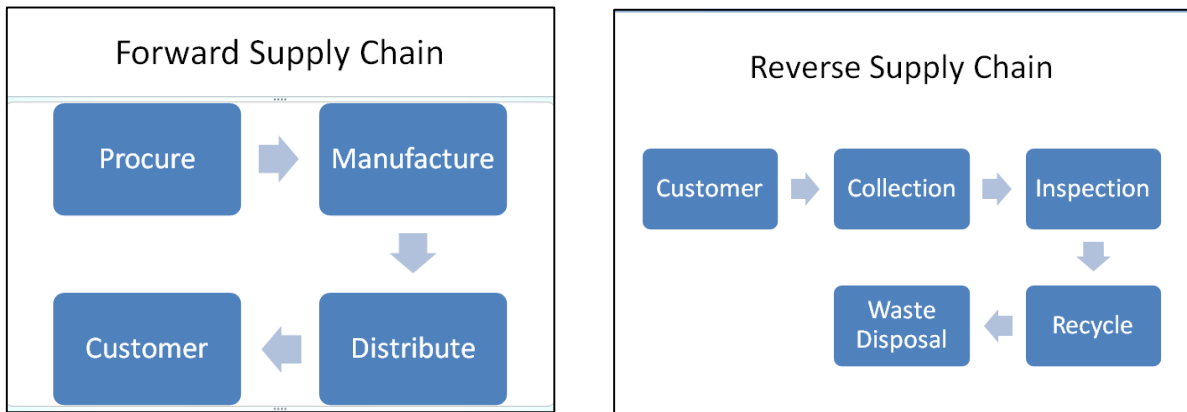
FORWARD SUPPLY CHAIN

Can the Virtual University student identify the difference between supply chain and a forward supply chain? Is Forward Supply Chain same as the Generic Supply Chain discussed before?

The Student is requested to write down the answer in his log book. Ideally the answer should be in affirmative.

REVERSE SUPPLY CHAIN

Supply Chain Authorities like Dr. Dale S. Rogers and Dr. Ronald S. Tibben Lemcke are of the view that “Reverse Supply Chain is the Process of Planning, Implementing, Controlling the efficient, cost effective flow of raw materials, in process inventory, finished goods and related information from the point of consumption to point of origin for the purpose of recapturing value or proper disposal”.



MODULE 2: NEED FOR REVERSE SUPPLY CHAIN

About 20 % of products sold in USA are returned. The leading Technology consultancy Gartner in 2004 reported that “Improperly Handled returns erode 32-35% of potential profits of the business organizations. That number has improved after 11 years but still around 22 %.

Enterprises need Reverse SC for replacing defective goods, repairing the used products, refurbishing the returned product, calling back substandard or harmful goods, disposal of product waste. There can be other direct reasons like government or third party regulatory compliance. As a matter of fact, there are more reasons like environmental awareness, government regulations on product recycling and waste disposal, growing consumerism and stiff competition

Another important need being the return of new product launched. It is a sad situation that often businesses receive the setup of the customer returning the product on the pretext as the product did not deliver what it had promised to deliver.

DRIVERS OF REVERSE LOGISTICS: The common drivers of reverse logistics include but are not limited to Economics, Legislation, Corporate Social Responsibility, Consumerism, and Competitiveness

DISPOSITION CHOICE THROUGH REVERSE LOGISTICS: Green supply chains and environmental issues have come in cohesion and provide the following disposition choices

1. Reconditioning: when a product is cleaned and repaired to return it to a “like new” state.
2. Refurbishing: Similar to reconditioning, except with perhaps more work involve in repairing the product.
3. Remanufacturing: Similar to refurbishing but requiring more extensive work; often requires completely manufacturing disassembling the product
4. Resell: When a returned product may be sold again as new
5. Recycle: When a product is reduced to its basic elements, which are reused-also referred to as “asset recovery”

SCOPE FOR REVERSE SC

The scope for reverse supply chain is immense and it can play an important role in FMCGs, Pharmaceutical, Oil & Gas companies, Newspaper and publication industry like refilling, repairs and refurbishing, product recall, recycling and waste disposal and remanufacturing

1. Refilling: Refilling is probably one of the more easily recognized scopes and applications of reverse supply chains for instance Sui Gas / Natural Gas for Industrial & Consumer use Oxygen, Nitrogen & other gases for Health and Industrial Usage, FMCGs like soft drinks, empty cans, and containers. No extra costs are involved and are mostly use Hub and Spoke distribution system in reverse flow.

2. Repairs and Refurbishing: This type is more suitable for Service Based Products like Consumable products like Television sets, Audio Systems, DVD, PC, Machines, and Fans etc. For consumer durables and engineering products manufacturers in general keep in place the reverse logistics systems for extending the service within warranty period and beyond warranty period on a chargeable basis

3. Product Recall: Is calling back products from the customers or requesting the customers to return the products. The common reasons being safety concerns, design defects or labeling errors, so on and so forth. Product recall becomes a matter of life and death in the pharmaceutical companies where if the customers are identifiable through a finite database e.g. Glaxo (Glaxo SmithKline Beecham).

Numerous companies like Johnson & Johnson, Toyota, Nokia, IBM/Sony have recalled various products in the past due to one reason or another.

The reasons for product recall may include damage control, safety concern for all users or accidents, design defects in product which may deteriorate the image of the company, avoid litigations for costly settlements.

4. Recycling and waste disposal: This is probably one of the more important ones directly affecting the businesses, consumers and the governments. The reasons more or less include the same to protect environment, used products, polythene bags and wrapper wastes.

Virtual University Students must remember that government regulations are subservient to International awareness and United Nations backed environmental compliance. Germany has introduced responsibility for manufacturer for taking back pallets, cardboard boxes, wrappers, strapping etc. which are used for protecting the products during transit. The indication is a green dot that it needs recycling. There is a three stage packaging ordinance.

1. In the first stage, the wrappers or packaging wastes are collected from households by the retailers
2. In the second stage, the retailers send it to manufacturers who
3. In the third stage send it to packaging manufacturers for recycling or disposal
4. **Remanufacturing:** The manufacturers new strategy is to replace worn out parts with new parts so that the remanufactured product performs up to the same level. The opponents of Remanufacturing suggest that remanufacturing will land the remanufactured products in less developed countries so a means to dispose of waste to poor economies.

MODULE 3: DESIGN OF REVERSE SUPPLY CHAIN

Network design is important for both forward and reverse supply chains. The critical considerations for reverse flow of material include location of channel members, warehouses, company's manufacturing plant, refurbish / repair centers and the capacity of transportation services to handle the reverse flow of the material.

Many enterprises handle the reverse flow of the material through their forward supply chain. Their forward supply is designed to take up the reverse flow of the material/product. This helps the enterprise to achieve economies of scale with respect to information and logistics support.

Supply Chain Practitioners are able to differentiate the configuration of reverse network in two segments i.e. convergent and divergent segments.

The first segment is a convergent one where the enterprises collect the returned material at some convenient place or location and transfer the accumulated material to reworking/recovery facility

The second segment is a divergent one where in there a linkage with customers to collect reusable material is. It is integrated with forward supply chain of the enterprise.

MODULE 4: STRATEGIC POINTS OF REVERSE SUPPLY CHAIN

There are four readily identifiable strategic points of reverse supply chain namely collection of returned /used Products, testing/grading process, reprocessing and redistribution.

1. Collection of Returned /Used Products: The major cost component of Reverse Supply Chain is product collection. In case of High value products, the channel partners have records to trace the end user. In low value products like those of the FMCG industry, the collection of defective material after it leaves the channel network becomes difficult. Locating the end user is difficult due to lack of record /information. In reverse supply chain, retailers and distributors are deployed for collection of returns

2. Testing/ Grading Process: In this stage only products can be assigned for recovery opinion. Hence, the location of testing or grading operation is important as it decides the flow of goods. The cost of transportation may be significant as a percentage of the value of the used product.

In many cases, the testing and grading of recovered product is done at some central location as special equipment and skilled workforce is required. Geographically decentralized testing facility is used to avoid transportation cost for unwanted useless returns

3. Reprocessing: In this stage there is a high capital need for setting up a reprocessing facility. Capital investment is required for recycling or product recovery. The facility can work profitably only on economies of scale. The recovery facility should be integrated with regular manufacturing line of the new products so as to make use of available labor and machine resources.

4. Redistribution: The redistribution of reworked products can be completed by integrating with forward supply chain. Consolidation and responsiveness in transportation are required to achieve efficiencies. Redistribution can also be done along with new products.

MODULE 5A: ADVANTAGE OF REVERSE SUPPLY CHAIN

Recovery of value from Products, which were initially considered unfit for use, is probably one of the most commonly, understood advantages of supply chain. It also identifies means to reduce waste or at times prevent the generation of waste. This is possible with the help of following decision points like collection, Inspection/Testing, selection, sorting and recovery. One over looked aspect of Reverse Supply Chain is the increase in customer satisfaction by addressing customer problems and giving voice to the customers concern. This ensure the customer returns to buy the new product as after sales service team ensures that the customer safety as well as product utility provides customer the satisfaction he or she paid for. In all honesty Reverse Supply Chain is another face of Customer Relationship Management.

MODULE 5B: CHALLENGES OF REVERSE SUPPLY CHAIN

Designing and organizing a reverse Supply Chain often gives rise to subsequent challenges like Channel Member-Manufacturer Conflict, Responsiveness, Information Systems, Problems related to returns, Reverse Supply Chain Need recognition, Product Life Cycle Management, Data Collection and Information System, Web Based Systems and Third Party Engagement.

A good supply chain design should ideally be prepared to take care of these challenges or at least should have a direction to address these challenges. A supply chain manager should ideally report these challenges on a periodic basis to the senior manager in the form of a risk profile.

MODULE 6: PAKISTANI CONTEXT

Companies in Pakistan are in the business of exporting various products to markets outside Pakistan. They pay attention to forward supply chains but ignore reverse supply chains leading to poor customer relationship management. Forward and Reverse Supply Chain are different and have different dynamics

Most of the forward Supply Chains are not designed to handle reverse flow of materials. Pakistani Textile, Leather, Apparel often pay a price for ignoring the Reverse Supply Chain. Reverse Supply Chain is the Process which can help the Pakistani suppliers the recapture value or fulfill proper disposal as required by regulatory bodies of different trade zones.

Foreign businesses making headways in Pakistan are promptly gaining customer loyalty with the help of Reverse Supply Chains.

GADANI SHIP-BREAKING YARD: A case for making good use of disposed items. It is an ideal place to plan and salvage exotic materials, valves, instrumentation, piping, fittings and machineries which can be used again both by industrial as well as domestic consumers. Gadani acts as a new market of salvaged material, which can be reclaimed and put to use.

What is being done in a fragmented manner should be done in a consolidated and effective manner with business strategy for global partnership. It would make more business acumen for the Government of Pakistan to develop Gadani ship breaking yard as a reverse engineering hub where reverse supply chain can be used to feed the infrastructure and equipment hungry industry of Pakistan.

The highly expert work force has shown that it enjoys a very high efficiency of breaking down ships in 40 to 45 days. This means this workplace can achieve in 6 weeks which other ship breaking zones do in 6 months.

Gadani ship-breaking yard is the world's third largest ship breaking yard.

The yard consists of 132 ship-breaking plots, located across a 10 km long **beachfront** at **Gadani**, Pakistan, about 50 kilometers northwest of **Karachi**. Till 1983, Gadani was the largest ship-breaking yard in the world, with more than 30,000 direct employees.

However, competition from newer facilities in **Alang, India and Chittagong, Bangladesh** resulted in a significant reduction in output.

Gadani, today, producing less than one fifth of the scrap it produced in the 1980s. The recent reduction in taxes on scrap metal has led to a modest resurgence of output at Gadani, which now employs around 6,000 workers. Over 1 million tons of steel is scavenged per year, and much of it is sold domestically.

In the 2009-2010 fiscal year, a record 107 ships, with a combined light displacement tonnage (LDT) of 852,022 tons, were broken at Gadani whereas in the previous 2008-2009 fiscal year, 86 ships, with a combined LDT of 778,598 tons, were turned into scrap.

Gadani currently has an annual capacity of breaking up to 125 ships of all sizes, including supertankers, with a combined LDT of 1,000,000 tons. Although Gadani ranks as the world's third largest ship breaking yard after Alang and Chittagong in terms of volume, it is the world's leading ship breaking yard in terms of efficiency.

At Gadani, a ship with 5,000 LDT is broken within 30 to 45 days, whereas in India and Bangladesh, it takes, on average, more than six months for breaking a vessel of the same size.

How Gadani Operates: Ships to be broken up are run aground on the beach under their own power, then gradually dismantled. As the weight of the ship lessens, it is dragged further onto the beach until completely scrapped. Scrapping ships at Gadani uses large amounts of cheap, local labor with minimal mechanical assistance. Workers may earn as little as \$4 a day, and are exposed to many dangers. In 2001, the Government of Pakistan reduced ship-breaking duties from 15% to 10% and offered further incentives if industry activity improved.^[3] The measures have been effective, with a modest increase in employment to a total of around 6,000 workers.

In words of Napoleon Bonaparte

"The amateurs discuss strategies, dilettantes discuss tactics; the professionals discuss logistics."

Enterprises continue to spend more and more money on forward supply chain but they can no longer afford to ignore Reverse Supply Chain as efficient and effective reverse supply chains continue to bring benefits, increased customer loyalty and competitive advantage.

END OF LECTURE 8: GIST AND CRUX:

1. *Forward and Reverse Supply Chain Management tests the cost and revenue management of a supply chain strategies of the entire supply chain. Contracts are comprehensive coordination mechanisms used in both theory and practice to coordinate various supply chain structures. By focusing on the coordination by contracts of the forward and reverse supply chains, supply chain partners can register sustainable long term profits.*
2. *Need/ Scope of Reverse Supply Chain is primarily because of green supply chains. It addresses the environment concern which was never really addressed by traditional supply chain models. Reverse Supply Chain allows any business to pursue its recycling, remanufacturing and reengineering needs. Closed loop supply chains are treated as total system and can thus help an enterprise exploit both its forward and reverse supply chains to register sustainable long term supply chain profits.*
3. *Design of reverse supply chain entails all the important aspects that cover the flow of materials, information from the point of consumption to point of origin. Ideally reverse supply chain should follow a design that can be integrated with the forward supply chain resulting in effective cost and revenue management along with lean reverse logistics.*
4. *Strategic points of reverse supply chain Advantages and challenges of reverse supply chain differ from industry to industry. Reverse supply chains have become strategic as often regulatory compliance with respect to customer protection and environment sustainability have forced various manufacturers of automobiles or electronic goods to overcome the challenges of labour costs, logistic costs and infrastructure limitations. Global leaders in automobile industry have certain strategic business units that maintain risk profiles with respect to a product return and serviceability is not compromised while overcoming the critical challenges of efficiency and responsiveness.*
5. *Reverse Supply Chains in Pakistan are in their nascent phase. Most of the discussion focuses on FMCG, Automobile and Cell phone manufacturers with glaring omission being the very first place of Reverse Supply Chain. Pakistan has underutilized Gaddani ship breaking yard for reasons best known to the bureaucracy of the country. If made good use of the Gaddani facility, a lot of reengineering and reverse engineering industry can be utilized to beef up the weakened heavy and light engineering industry of the country. With the Economic Corridor project about to take off, making best use of Gaddani facility would result in reverse supply chain surplus for the country.*