

**Supply Chain Management for Efficient Consumer Response Conference
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SCM 4 ECR**

**EFICIENT HEALTHCARE CONSUMER SUPPLY
CHAIN OPTIMIZATION**

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TOPICS

- (1) Healthcare Supply Chain
- (2) Risk & Disruptions in Healthcare Supply Chain Management
- (3) Consumer response to an efficient supply chain
- (4) Romanian supply chain in healthcare
- (5) Example of a disturbance in the supply chain
- (6) Proposals

Patient Safety

Main objective is “the prevention of harm patients”

Emphasis is placed on the system of care delivery that

(1) prevents errors;

(2) learns from the errors that occur;

(3) building on a culture of safety that involves health care professionals, organizations, and patients

“freedom from accidental or preventable injuries produced by medical care”

1. Healthcare Supply Chain

Supply chain - is a set of many entities (organizations or individuals) directly involved in upstream and downstream flows of products, services, finance and / or information from a source to a final customer“

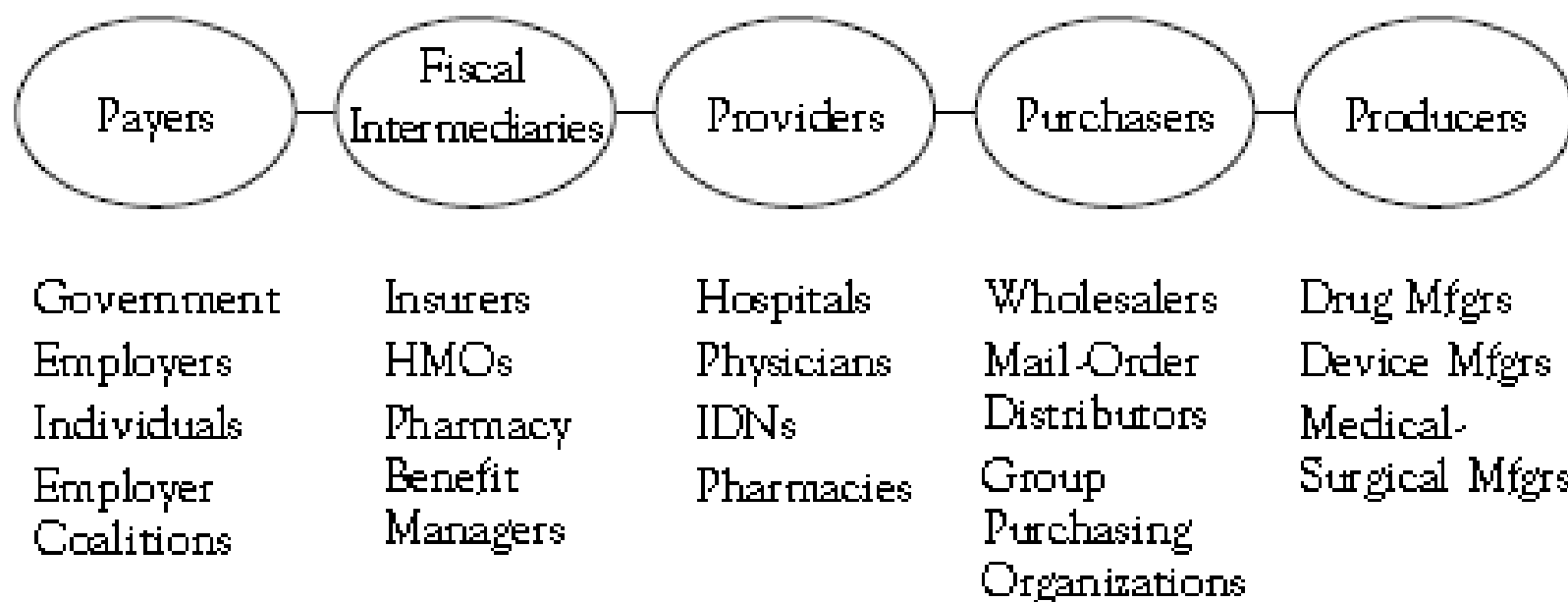
Healthcare - is the diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in humans. Health care is delivered by practitioners in medicine, chiropractic, dentistry, nursing, pharmacy, allied health, and other care providers work done in providing primary care, secondary care and tertiary care, as well as in public health.

Health main product is the result of medical act, studies showing that fully pursue this goal (based on evidence), by associating processes will lead to achieving the expected results.

The Healthcare Supply Chain is :

- ❖ *Immature*
- ❖ *Collaborative*
- ❖ *Strategic*
- ❖ *Expensive*
- ❖ *Information poor*
- ❖ *Talent rich*

Health Care Supply Chain



Source : Health Care Value Chain - "The Wharton School Study of the Health Care Value Chain" - Lawton R. Burns, Robert A. DeGraaff, Patricia M. Danzon, John R. Kimberly, William L. Kissick and Mark V. Pauly

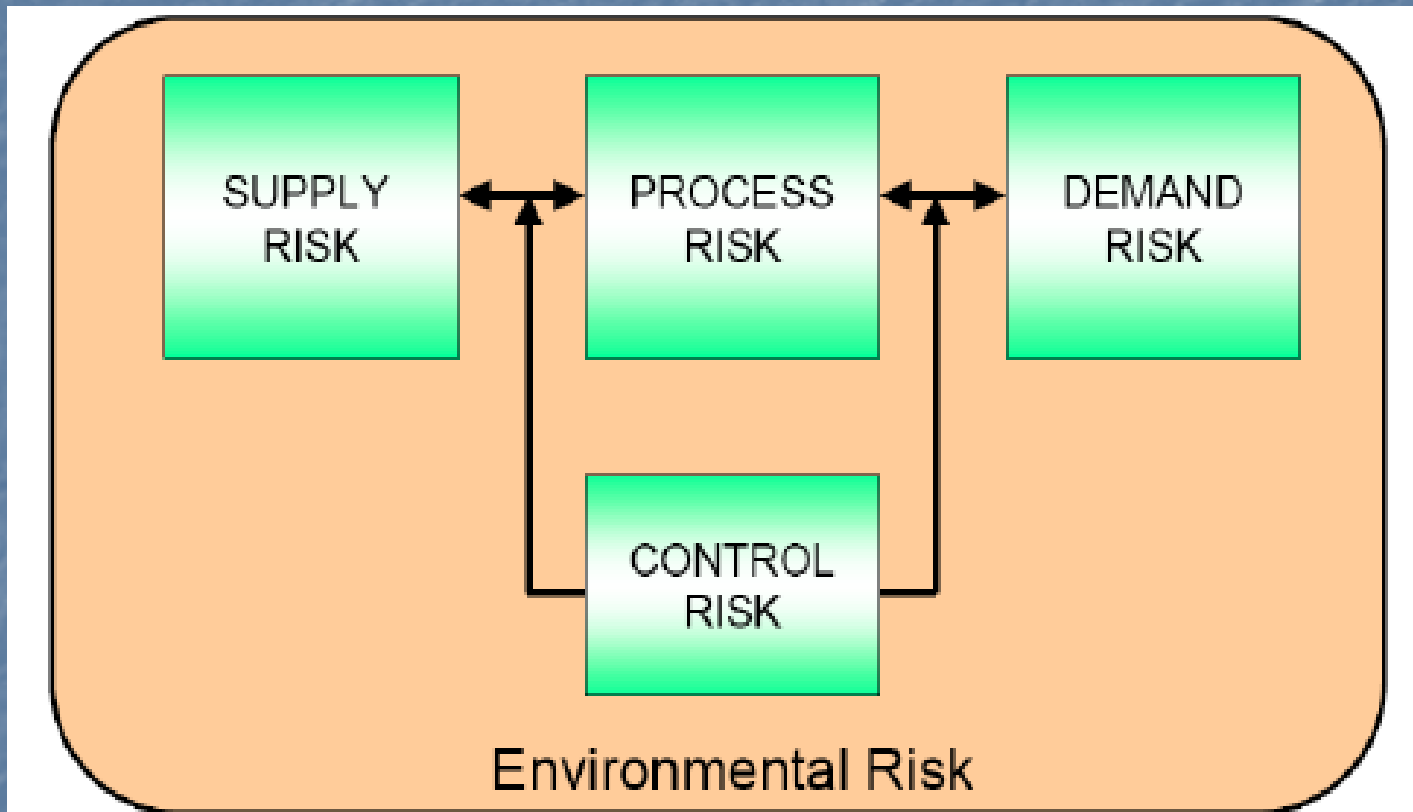
2. Risk & Disruptions in Healthcare Supply Chain Management

Supply chain risk management (SCRM) is the systematic identification, assessment, and quantification of potential supply chain disruptions with the objective to control exposure to risk or reduce its negative impact on supply chain performance.

Potential disruptions can either occur within the supply chain (insufficient quality, unreliable suppliers, machine break-down, uncertain demand, etc.) or outside the supply chain (flooding, labor strikes, natural disasters, large variability in demand, etc.).

Management of risk includes the development of continuous strategies designed to control, mitigate, reduce, or eliminate risk.

Risk sources in the supply chain



Source: Martin Christopher and Helen Peck

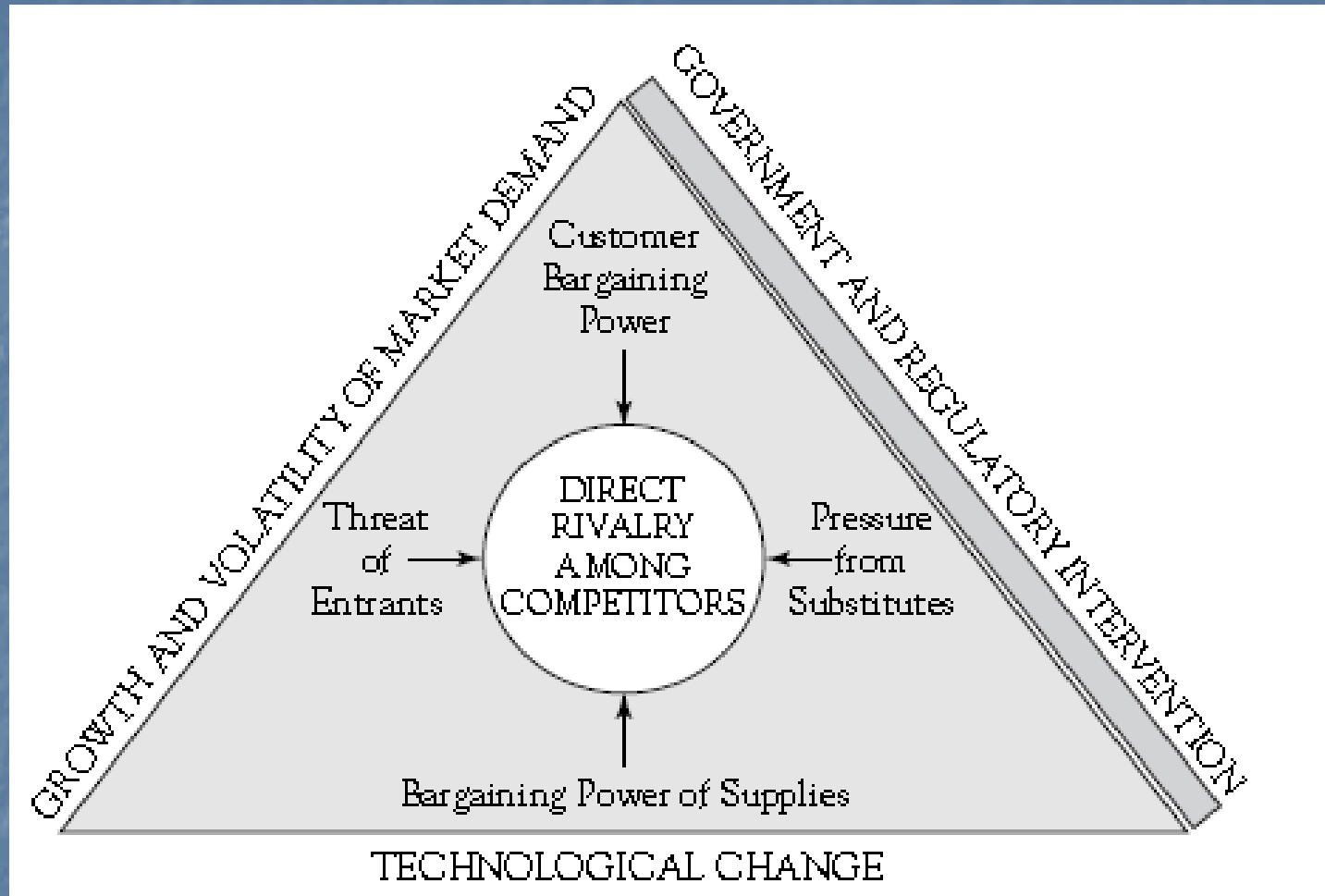
Supply chain vulnerability: while a supply chain disruption is the situation that leads to the occurrence of risk, it is not the sole determinant of the final result. It seems consequential that also the susceptibility of the supply chain to the harm of this situation is of significant relevance.

This leads to the concept of supply chain vulnerability. In other way, ***supply chain vulnerability*** is an exposure to serious disturbance, while vulnerability is a susceptibility or predisposition to loss because of existing organizational or functional practices or conditions.

Proactive: these approaches take place before the occurrence of an event, aiming at reducing (for negative outcomes) its likelihood. The emphasis here is on those methods related to failure prevention, “near-misses” detection and adoption of layered defense approaches. Proactive approaches are aimed at anticipating the causes of disruptions.

Reactive: these approaches deal with the consequences of the occurrence of an event, aiming at reducing the resulting (negative) outcomes. In general, reactive, flexibility based and redundancy methods are known as disruption management in that they react after the disruptive event takes place, focusing on the resilience of the company or the ability to promptly recover from a disruption.

Porter's Five Forces



Source : George S. Day "Market Driven Strategy: Process for Creating Value"

Efficient Consumer Healthcare Response (EHCR)

During the mid-1990s, several prominent supply chain participants formed a consortium called the Efficient Consumer Healthcare Response (EHCR) to combat these problems in the U.S. health care supply chain. They identified an agenda of issues to be addressed, including:

The main reasons of forming for a global consortium

- ❖ *Paper shuffling (manual requisitions and purchase orders, paper-based pricing information)*
- ❖ *Lengthy product ordering and delivery cycle times*
- ❖ *Multiple product handling activities*
- ❖ *Excessive inventory carrying costs*
- ❖ *Lack of information sharing among trading partners*
- ❖ *Little information on product location*
- ❖ *Little information on product utilization*
- ❖ *Operational (rather than customer) focus*
- ❖ *Pressure from managed care organizations to cut short-term costs*
- ❖ *Lack of trust between trading partners*
- ❖ *Lack of complete implementation of electronic commerce*

Problems and difficulties in organizing a supply chain

- ❖ *Combining all the supply chain parts*
- ❖ *Issues of values, missions, goals and rules of behavior*
- ❖ *Different programs between companies*
- ❖ *Setting up the digital management platform*
- ❖ *Problems of implementing supply chain management*
- ❖ *Obstacles in sharing informations*

What Is Health Care`s Problem?

- ❖ (1) unlike other industries, products are often ordered by workers on the front line of health care delivery, such as physicians, nurses, and so on.
- ❖ (2) business practices have crept into the system incrementally;
- ❖ (3) consolidation, it is still a fragmented industry with no real leadership at any stage;
- ❖ (4) providers have historically made their technological investments in patient care rather than information system and infrastructure.

3. Consumer response to an efficient supply chain

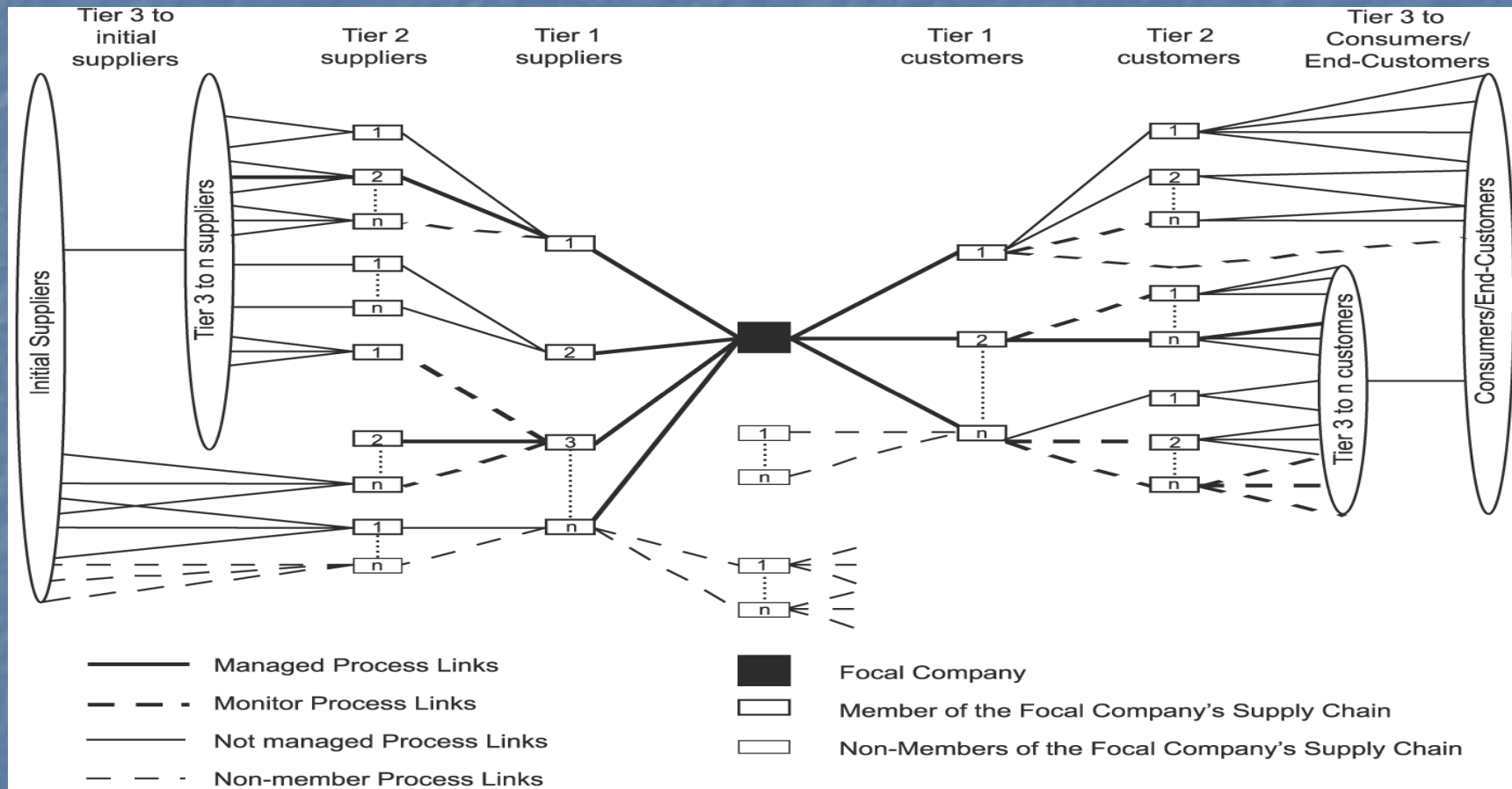
- ❖ *Overall satisfaction index of patients in public hospitals depends largely on their education and their income fund;*
- ❖ *Romanian patients requests become larger and larger after their standard of living increases;*
- ❖ *Patients (clients) require improved health services;*
- ❖ *Most patients tend to spread comments (positive or negative) about the hospital and his family doctor.*

Foreign examples of successful supply chain

The Canadian example (supply chain in nord american contries)

- ❖ *The aparition of large sophisticated shared service organizations (SSO`s) performing supply chain services on behalf of their healthcare provider member institutions;*
- ❖ *They obtain an agreement in the industry, with decisions that apply to healthcare providers, trading partners, providers of technology solutions;*
- ❖ *Over 55% of healthcare providers and 100 of the manufacturers were brought together to standardize the supply chain in Canada;*
- ❖ *They introduced worldwide a global product identifier, a location identifier and centralized access to clean, accurate, complete product data to be used by our healthcare institutions;*
- ❖ *In 2009 they also created a national registry of the Canadian health products;*

Types of Inter - Company Business Process Links



Source: Lambert *et al.* (1998)

4. Supply chain in the romanian public healthcare system

Cash flow inside the supply chain

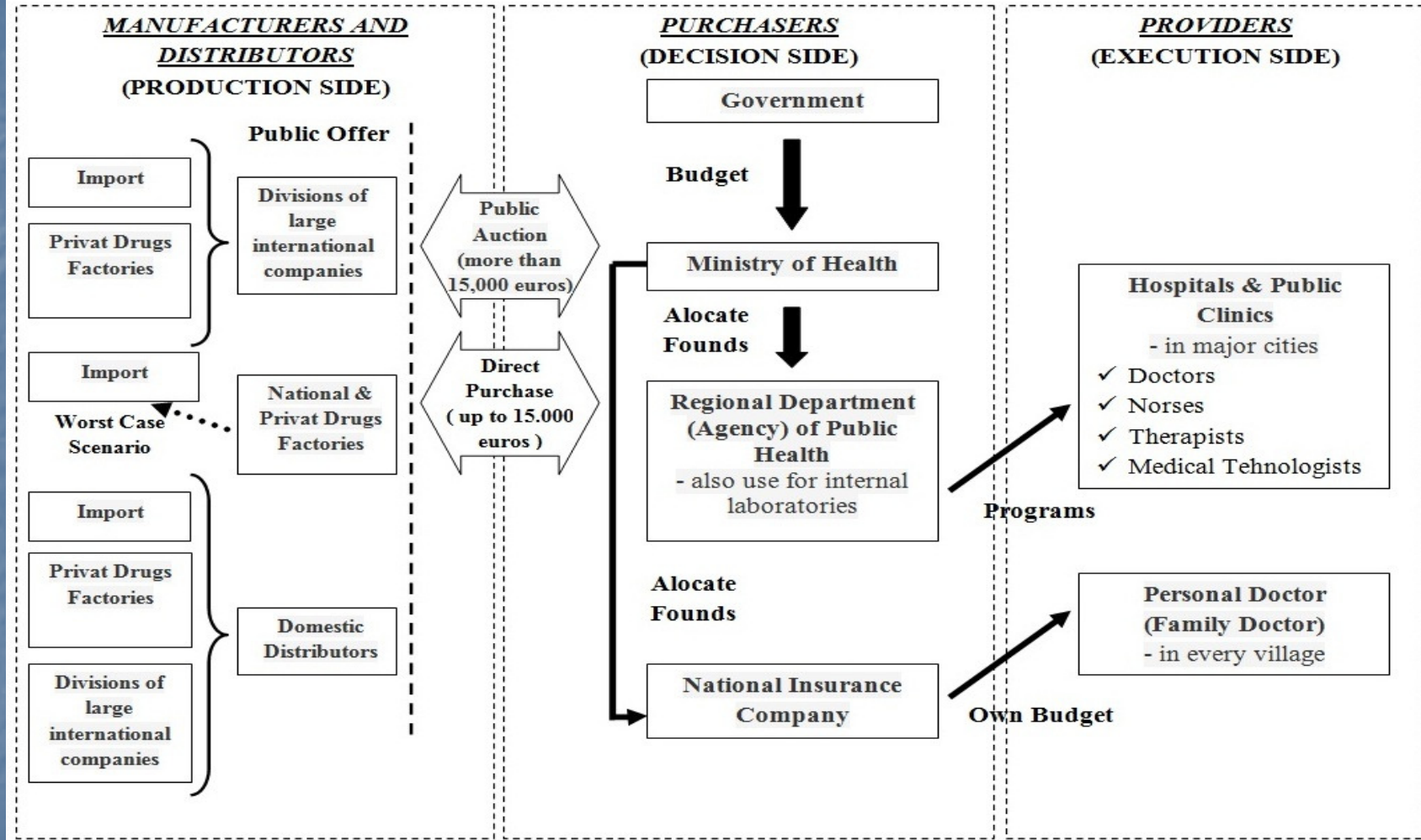
Everything starts with the allocation by the Government of the annual budget to the Ministry of Health. This choice to purchase some of the technologies or medicinal products, or allocate funds to subordinated institutions or hospitals.

Both the Health Ministry and its subordinated institutions are able to purchase products based on programs either through public auction (if the purchase value exceeds 15.000 euro) *or by direct purchase* (if value is up to 15.000 euro).

Across the acquisitions are three main competitors (certain divisions of large international companies with branches in our country, public and private factories in our country, and domestic distributors).

Ministry of Health allocates funds to hospitals, regional public health directions but also national health insurance house which in turn allocate funds for family doctors and specialized private cabinets.

Cash flow inside the supply chain



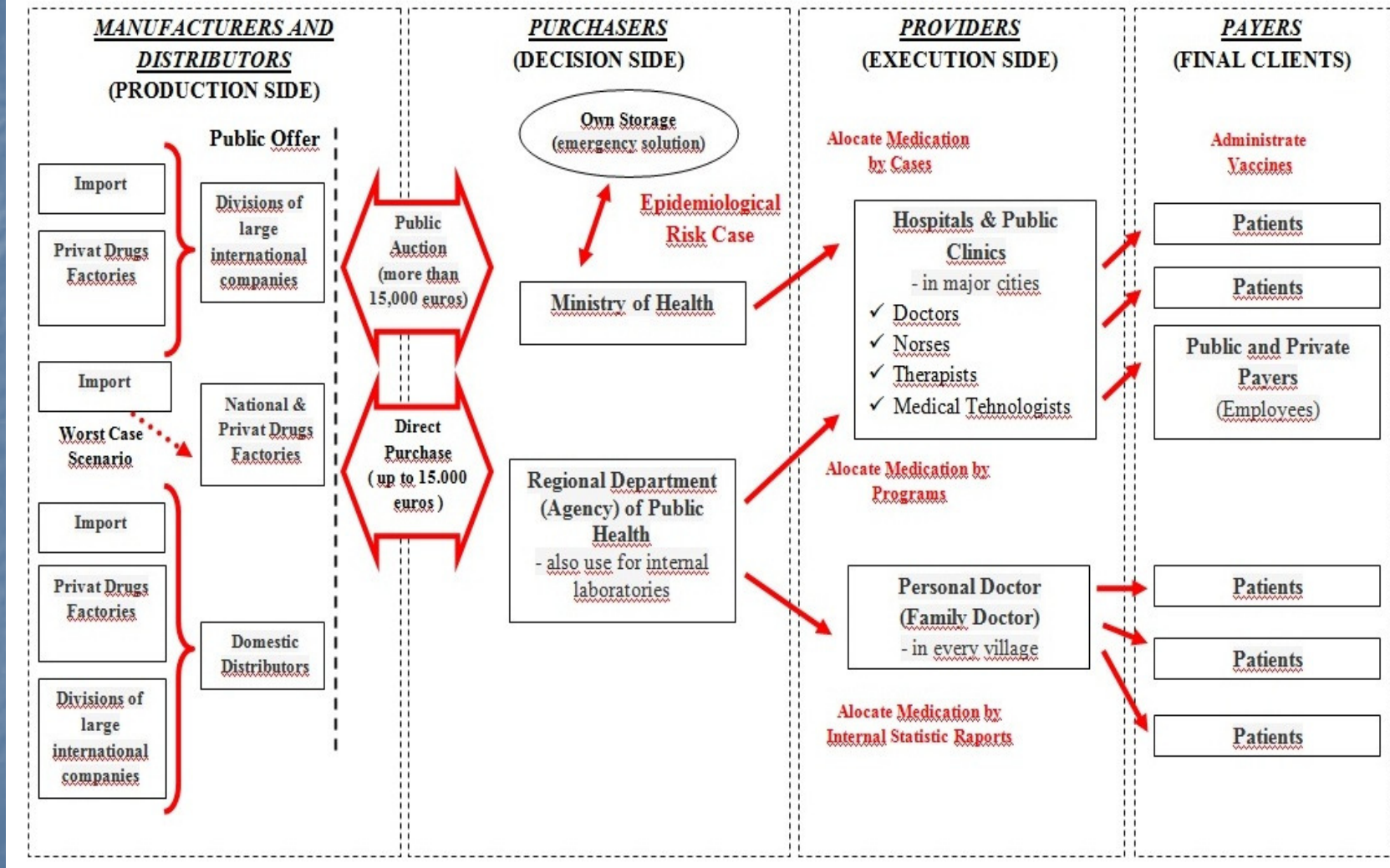
Medication & Vaccines flow inside the supply chain

If the winner is for example one of the major branches of pharmaceutical companies worldwide, it has the possibility to import the medicinal products from large warehouses or factories owned foreign or from other suppliers from abroad but respecting the price at which it was auctioned or from owned factories and warehouses.

Medicines are then delivered to the Ministry of Health which annually renew its stock (their deposits) in case of emergency and hospitals to distribute the subordinated units and beyond, the second class of units which are delivered this type of medicines being county health departments, delivering to them being made either directly to there headquarters units, or to the Ministry for employees of this units to get them later.

Regional public health departments in turn distribute the medicines to county hospitals and family doctors to use them campaign at full.

Medication & Vaccines flow inside the supply chain



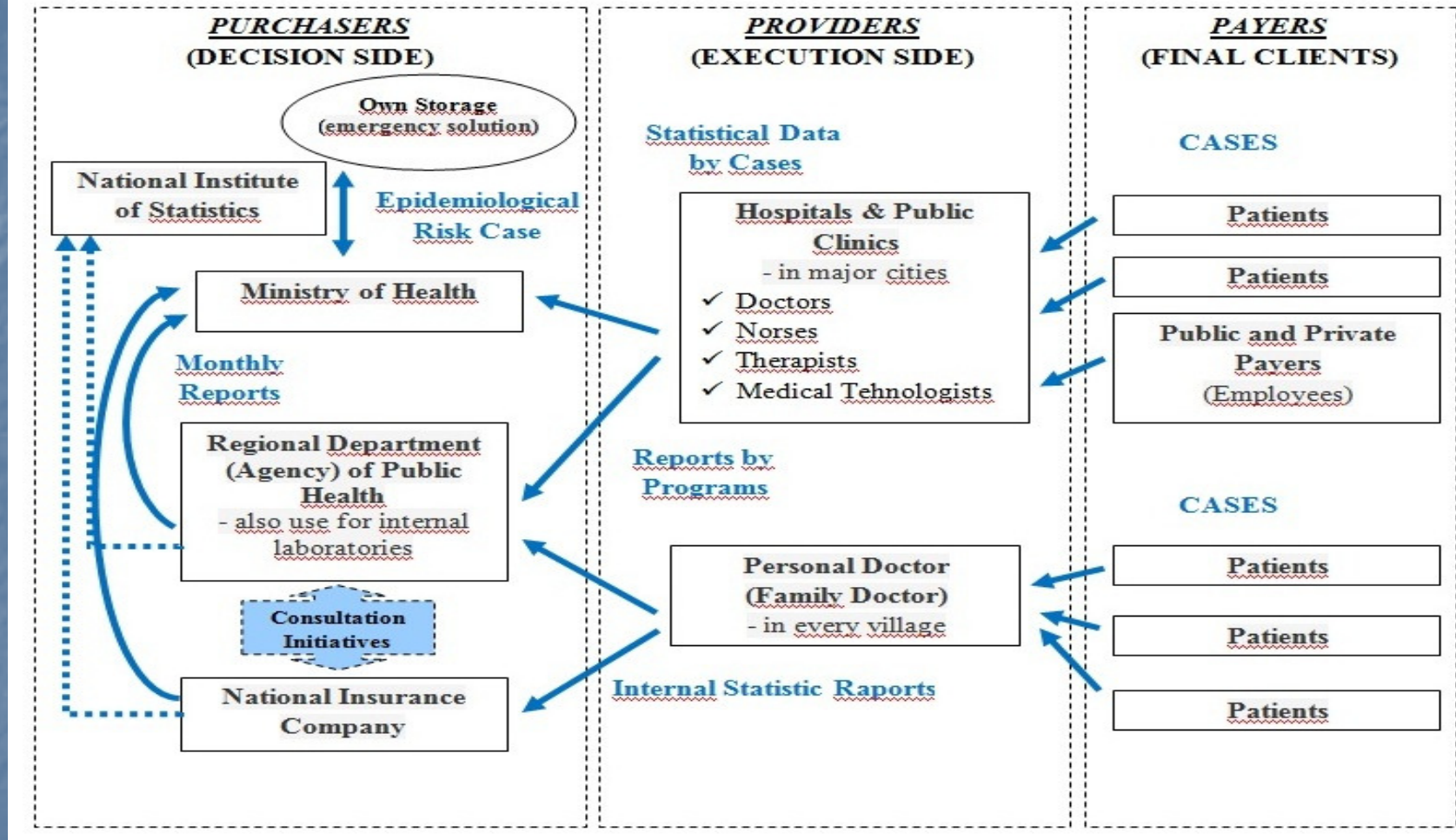
Statistical data flow inside the supply chain

After running the program by informing citizens on the patient's need, both family doctors and hospital units are required to report monthly statistical data at the end of each month without over come the last day of the month.

Data collected is reported at the regional public health departments, but also to the Regional Insurance Health Company based on recipes provided and in hospitals based on nominal tables of the institution employees (Human Resources department) and the medical cases investigated in hospital.

The Regional Healthcare Departments and Regional Health Insurance Company, report data collected to the Ministry of Health and to the National Institute of Statistics (collection of statistical data on industries and their provides both authorities and citizens through mass media, publications, or web site).

Statistical data flow inside the supply chain



5. Example of a disturbance in the supply chain

(a more recently exemple is the *Cantacuzino Institute*)

Cantacuzino Institute in Romania is the only institute that produced vaccines and serums to which depended the health of millions, is now facing bankruptcy. He also was the producer with the lowest prices on the market in our country drug market on certain segments.

Problems have appeared more than 20 years ago when in the 90`s to the Ministry of Health were sent many memoranda which drew attention to the fact that the cancellation of every one of their facilities to produce vaccines and serums will eventually collapse the institution.

- main factors that contributed to the closure of the institute

- ❖ **bad management** (about 700,000 doses of vaccine is about to expire in storage because the institute can not put up them to sale because of the marketing authorizations that have expired - laboratories no longer rises to the standards required by the European Union);
- ❖ **debts to the Ministry of Health and Tax Authorities** (he has to pay about one million euro`s to the ministry with the withdrawal of the vaccine purchased it - 700,000 doses)
- ❖ **emergence of foreign pharmaceutical companies** with strong influence on decision structures at central level;
- ❖ **some real estate interests** (the Cantacuzino Institute is situated on land extremely valuable on real estate market, with its closing probably the sale is desired by the Ministry of Health);

Closing results of the Cantacuzino Institute

For the first time in the last ten years, romanian seasonal flu vaccine will not be found this year in pharmacies and family doctors, also means more money will be spent to buy imported vaccine.

Prices are low because there is a domestic manufacturer, otherwise the Ministry of Health will have to allocate more money from the budget.

Backup Solutions

According to Order 1033/14 June 2011, Ministry of Health State has a reserve of 33,480 vaccine doses found in their warehouse in cases of force majeure. Also de institute may call on the importation of drugs necessary to offset some contracts to be honored with the Ministry of Health.

The Health Ministry has taken measures to prevent closure of the institute

Ministry of Health still looking for solutions, advices and expertises to balance the economic – financial institution and resuming production, but also states that “the institution is not subordinated to the Ministry Health”

6. PROPOSALS

Although there are many theories, concepts, principles, models, analyzes and practical experiences described in the literature, the most difficult for companies and institutions is to integrate these elements into practice.

- ❖ *Take into consideration the points of view of consumers on health care*
- ❖ *Simplify the supply chain by jumping from level scheme the disruptive elements in the flow distribution*
- ❖ *Create a national database on internet and use for easy communication between the main elements (real time communication)*
- ❖ *Introduce in all distribution flows the concept of RFID labeling technology for easy traceability of medicines*
- ❖ *Intervention of consulting companies*

CONCLUSIONS upon the following proposals

- ❖ *Supply chain simplification* represents a step forward to the optimization and improvement of the healthcare system;
- ❖ *Less time for medicines distribution* a very important benefit, especially in case of appearance of extreme cases;
- ❖ *Large discounts in the costs of managing and distribution* within the area assigned;
- ❖ *Faster response plan with actions in real time*, where the end customer (the patient) benefits from adequate treatment;
- ❖ *Reporting statistics in a more efficient way* without the need of travel to some locations;
- ❖ *Reduction of unnecessary stocks* where the terms of validity of medications and vaccines are essential;
- ❖ *Financial increases* for those actively involved in the distribution segment.

PAY ATTENTION !!! to some essential keys in order to implement the new practices

- ❖ ***Risk of losing some crucial data during the process*** until you will build a powerful and easy to use system
- ❖ ***The establishment of methodologies*** behind the elaboration of the new action plan
- ❖ ***The acceptance and understanding of new responsibilities*** that are entrusted to manufacturers and distributors
- ❖ ***Difficulties in using new technologies*** like software and hardware, internet browsing or efficient management of distribution, especially in rural areas
- ❖ ***Increase the activity volume for family doctors*** in keeping a link with all manufacturers and suppliers involved

THANK YOU !