

REINVENTING GOVERNMENT ROLE IN TRANSPORT SECTOR: THE WAY FORWARD

Khaled A. Abbas¹

Egypt National Institute of Transport
P.O. Box 34 Abbassia – Nasr Road – Nasr City – Cairo – Egypt
e-mail: kaabbas13@yahoo.com

Abstract

The main aim of this research lies in developing a structured framework constituting the generic roles (functions and activities) that ought to be pursued by governments in national transport. The paper starts by a world-wide state of the art review of roles played by four departments/ministries of transport in the USA, Japan, Australia & UK. This is followed by discussing three important notions and their effects on government role in the transport sector, namely privatization, sustainability and governance. The framework developed, in this research, classifies the perceived roles of a ministry of transport into three main categories. The first includes those roles that are necessary to enable the performance of the main roles, so called enabling roles. The second category includes the main instrumental roles of the ministry of transport. Main roles can be defined as those roles that represent the core tasks that ought to be mandated to a Ministry of Transport. The third category includes those roles that are supportive of the main roles. Supporting roles can be defined as those roles that are meant to assist in performing the main roles in an efficient and effective manner. The paper concludes by proposing a government reinvention process that involves several important phases and stages required to create the necessary environment for performing such roles.

Keywords: Reinvention; Government roles; National transport; Institutional concepts
Topic Area: H3 Deregulation, Privatisation and New Institutional Concepts

1. Introduction

In recent years, and as a result of increasing population and growing rates of socio economic development, an increase in the demand for transport infrastructure and services has occurred. Such increase is coupled with a need for provision of transport infrastructure to new areas and developments as well as to sustain certain levels of subsidized transport services to some groups of the society. All in all, this created a growing need for the provision of adequate and sustainable levels of transport accessibility and mobility. Unfortunately, in many countries, such increase in transport demand was not met in an adequate manner. Additionally, existing transport infrastructure and services are suffering from acute problems including lack of maintenance, congestion, inefficiencies, as well as safety and environment related problems. Such situation can be attributed to several reasons. Most importantly that governments across the world and particularly in developing countries are suffering from acute fiscal crises, and limited available financial resources. This is coupled with inadequate planning and management as well as with interventions by government in the operation of transport sector organizations presenting obstacles to the efficient provision of transport services.

Governments are faced with disenchantment with public sector performance. This, coupled with growing technological and information needs, has resulted into a fundamental shift in the roles governments play. Governments must open for changes, provide a basis for reform, and induce autonomy, performance-based management, and accountability. In this context,

¹ Currently on Sabbatical Leave to Department of Urban and Regional Planning - College of Architecture and Planning - King Faisal University – P.O. Box 2397 Dammam 31451- Saudi Arabia.

governments ought to move away from being providers of transport services and infrastructure, more and more, they should act as regulators of services and infrastructure provided by private sector.

The main aim of this paper lies in developing a structured framework constituting the generic roles (functions and activities) that ought to be pursued by governments in national transport. The paper starts by a world-wide state of the art review of roles played by four departments/ministries of transport, namely the United States Department of Transport, the Ministry of Land, Infrastructure and Transport in Japan, the Department of Transport and Regional Services in Australia and the Department of Environment, Transport and Regions in the UK. Such review is meant to represent examples of currently practiced government roles in the transport sector of these four countries representing four continents, America, Asia, Australia and Europe. This is followed by discussing three important notions and their effects on government role in the transport sector, namely privatization, sustainability and governance.

The framework developed, in this research, classifies the perceived roles of a ministry of transport into three main categories. The first includes those roles that are necessary to enable the performance of the main roles, so called enabling roles. Enabling roles can be defined as those roles that ought to be pursued prior and in parallel to main roles. Some of these are identified as necessary in order to accommodate the changing environment in which transport sectors currently operate across the world. Enabling roles include: institutional restructuring & building, organizational restructuring & reform, reviewing & drafting of enabling legislation, management & administration, human resource management & capacity building, government representation with parliament and transport committees, ensuring public participation & transparency, coordinating closely with other concerned government agencies as well as encouraging private sector participation and partnership.

The second category includes the main instrumental roles of a ministry of transport. Main roles can be defined as those roles that represent the core tasks that ought to be mandated to a Ministry of Transport. These include: strategic planning, identification of projects, programs, packages, conducting costing, benefit valuation and prefeasibility studies, budget preparation, identification of sources of funding & raising funds, interaction with private sector, conducting detailed technical, economic, environmental and legal studies, financing (investment decisions), setting standards, commissioning design, construction, provision, procurement, operation and maintenance of transport infrastructure and service facilities, inspection & licensing, regulating standards, monitoring & auditing, promoting development of transport related industries, providing technical assistance and representing government & networking.

The third category includes those roles that are supportive of the main roles. Supporting roles can be defined as those roles that are meant to assist in performing the main roles in an efficient and effective manner. These include: identification & funding research and development needs, developing databases and management information systems, adopting a program for technology transfer & innovation, preparing annual reports and developing manuals/guidelines.

All of these roles are shown in a logical sequence within the developed framework. Some are discussed in detail, others are briefly introduced. The paper proposes a government reinvention process that involves several important phases and stages required to create the necessary environment for performing such roles. The paper concludes by proposing a set of recommendations that constitute vital steps in ministries of transport endeavors towards restructuring, reform and attaining efficiency. It is recognized that a government full and sustained commitment is vital to the success of its role performance.

2. Review of role of ministries of transport

In most countries, there are several government bodies that are responsible for the national transport sector. However, this research concentrates on ministries or departments of transport as being the government key player in national transport. It is recognized that other government

bodies such as traffic police, planning authorities, environmental agencies, etc also play important roles. In this section, a worldwide review is conducted in an effort to show the main roles practiced by departments and ministries of transport across the world.

2.1. Role of United States Department of Transportation

The United States Department of Transportation (USDOT), created in 1967 brought under one umbrella several transportation missions. It is the primary agency in the USA government with the responsibility for shaping and administering policies and programs to protect and enhance the safety, adequacy, and efficiency of the transportation system and services. The mission of the USDOT can be elicited from several sources, see USDOT (2000a), (2000b), (2002), and www.dot.gov, as follows: “To Serve the United States by providing fast, safe, efficient, accessible and convenient transportation system at the lowest cost consistent with the national objectives of general welfare, economic growth, stability, security, and efficient use and conservation of resources. A transportation system that furthers the vital national interests and enhances the quality of life of the American people, today and into the future”. In pursuing such mission the USDOT mandated roles can be summarized in a logical order as follows:

- Providing general leadership in identifying and solving transportation problems.
- Formulation of national transportation policy.
- Developing programs to achieve transportation objectives considering the needs of the public, users, carriers, industry, labor and national defense.
- Ensuring the coordinated and effective administration of transportation programs.
- Promoting and undertaking the development, collection, and dissemination of technological, statistical, economic, and other information relevant to domestic and international transportation.
- Stimulating technological advances in transportation, through research and development.
- Encouraging cooperation of federal, state, and local governments, carriers, labor and other interested parties to achieve transportation objectives.
- Facilitating the provision (development and improvement) of coordinated transportation service by private enterprises.
- Issuance of regulations and preparing transportation legislation.
- Assuring fitness of transport services, and enforcement of regulations and standards.
- Providing an efficient and effective forum for the resolution of disputes.
- Negotiation and implementation of international transportation agreements.

2.2. Role of Ministry of Land, Infrastructure and Transport in Japan

The Ministry of Land, Infrastructure and Transport (MLIT) in Japan is a government ministry combining several sectors including land development, infrastructure and transport. In this context, MLIT has a wide mandate and responsibility. Its mission statement is to create a strong foundation through policies designed to support comfortable communities, vibrant socioeconomy, everyday security, a beautiful environment, and regional diversity, see www.mlit.go.jp. The main goals of MLIT is to utilize, develop and conserve land in Japan in an integrated and systematic way; develop infrastructure necessary for attaining those goals; implement transportation policies; and maintain transport safety and security. The wide mandate under MLIT includes:

- Developing comprehensive and basic policies for all transport sub-sectors and coordinating integrated policies involving several government bureaus.
- Developing a strategic plan.
- Planning and construction of roads.
- Responsibility for intercity and urban LRT systems.

- Addressing safety and environmental issues for all transport subsectors.
- Addressing regulatory reform in the transport industry.
- Regulating safety and service level in civil aviation.
- Operating air traffic control.
- Encouraging private sector participation.
- Promoting intelligent transport revolution.
- Creating an integrated transportation system aiming to achieve three goals (“3 e’s”) of goods movement, namely “efficiency,” “environment-friendliness” and “electronics”.
- Evaluating policy by developing performance management system.

2.3. Role of Department of Transport and Regional Services in Australia

The Department of Transport and Regional Services (DOTRS) in Australia has a strong policy development role, together with program administration and service delivery responsibilities. In addition strategic planning is undertaken and transferred to cooperate planning, see COA (2002). Regulatory agencies are independent from DOTRS. In addition to its policy and planning role, DOTRS establishes good relations with private sector, the public and politicians. It has several research programs as well as industry-related programs. The main roles of DOTRS can be summarised, see COA (2001) and www.dotrs.gov, as follows:

- Providing government and parliament with advice on transport policy options.
- Providing program administration, research, regulatory, investigative, safety services.
- Promoting the integration of transport and regional development.
- Promoting safe and secure transport systems.
- Providing a framework for competition between and within transport modes.
- Promoting a transport system that is accessible, sustainable and environmentally responsible.
- Providing funding for transport infrastructure.
- Ensuring information about relevant government policies and programs is disseminated effectively
- Conducting research, analysis and safety investigations.
- Endeavoring to involve key stakeholders, clients and customers in all stages of work.
- Providing effective regulation by encouraging a greater acceptance by industry of its obligations to maintain standards.
- Securing compliance with legislation through effective education, surveillance and procedurally fair enforcement.
- Promoting of an informed and safety motivated community.
- Participating in international and regional forums.

2.4. Role of Department of Environment, Transport & Regions in UK

Based on several sources, see DETR (1998), (2000) and www.detr.gov, the mission of the Department of Environment, Transport & Regions (DETR) in the UK can be elicited and stated as follows: to attain a sustainable transport system that meets the needs of people and business at an affordable cost and produces better places in which to live and work. A transport system which supports policies for more jobs and a strong economy, which helps increase prosperity and tackles social exclusion. A transport system which doesn't damage health and provides a better quality of life now - for everyone - without passing onto future generations a poorer world. In this context, the following goals/roles are pursued:

- Attaining a transport system that supports sustainable development.
- Bringing together the public and private sectors in a partnership, which benefits everyone.

- Ensuring that companies have incentives to provide new services and raise standards.
- Ensuring taxpayers' money is spent wisely to make public transport available for all.
- Ensuring that services are properly regulated in the public interest.
- Extending the range of transport choices.
- Investing more in public transport to improve its quantity and quality.
- Securing new and imaginative ways of funding to modernize the transport system.
- Giving high priority to maintaining and managing the nation's transport infrastructure.
- Producing better public transport, with easier, more reliable connections.
- Improving choice between different modes.
- Giving passengers bigger voice in public transport.
- Promoting better integration and interchange.
- Issuing regulation to serve the public interest.
- Ensuring that the private sector honors its commitments to deliver modern and efficient transport systems.

3. Notions affecting government role in transport sector

Before presenting the framework developed to show the roles that ministries of transport ought to play, three important notions and their effects on government role in transport sector are briefly discussed. These three notions are privatization, sustainability and governance.

Privatization

In a relatively recent World Bank report, see World Bank (1996), the role of governments in transport sector was redefined as follows: “The change of focus in transport policy towards a market-based approach implies a radical change in the role of government. The private sector can increasingly take on the responsibility for providing, operating and financing transport services, and even some transport infrastructure through concession arrangements. Thus, the role of the government as supplier or quantitative regulator will be reduced, but the importance of its functions as the enabler of competition, qualitative regulator and the custodian of environmental and social interests will increase. Also, setting efficient charges for the use of publicly provided infrastructure, maintaining the competitive environment in the sector and increasing community and user participation in decision-making, will become more important”.

Sustainability

Goals and ingredients of a sustainable transport system are shown in figure 1. Governments have the role of developing and implementing packages of strategies, policies, measures and actions aiming at reaching a sustainable transport system. Such packages are targeted towards minimizing the generic problems of traffic congestion, accidents, environmental degradation and waste of energy. The intensity of such problems could be minimized if the criterion of mobility was targeted to the movement of all people without any form of discrimination rather than being oriented to the movement of vehicles. Currently, there is a strong emphasis on transport policies and approaches that are integrated, long-term, pro-poor, holistic, focussed on accessibility, aiming to enhance quality of life and economic thrift and prosperity.

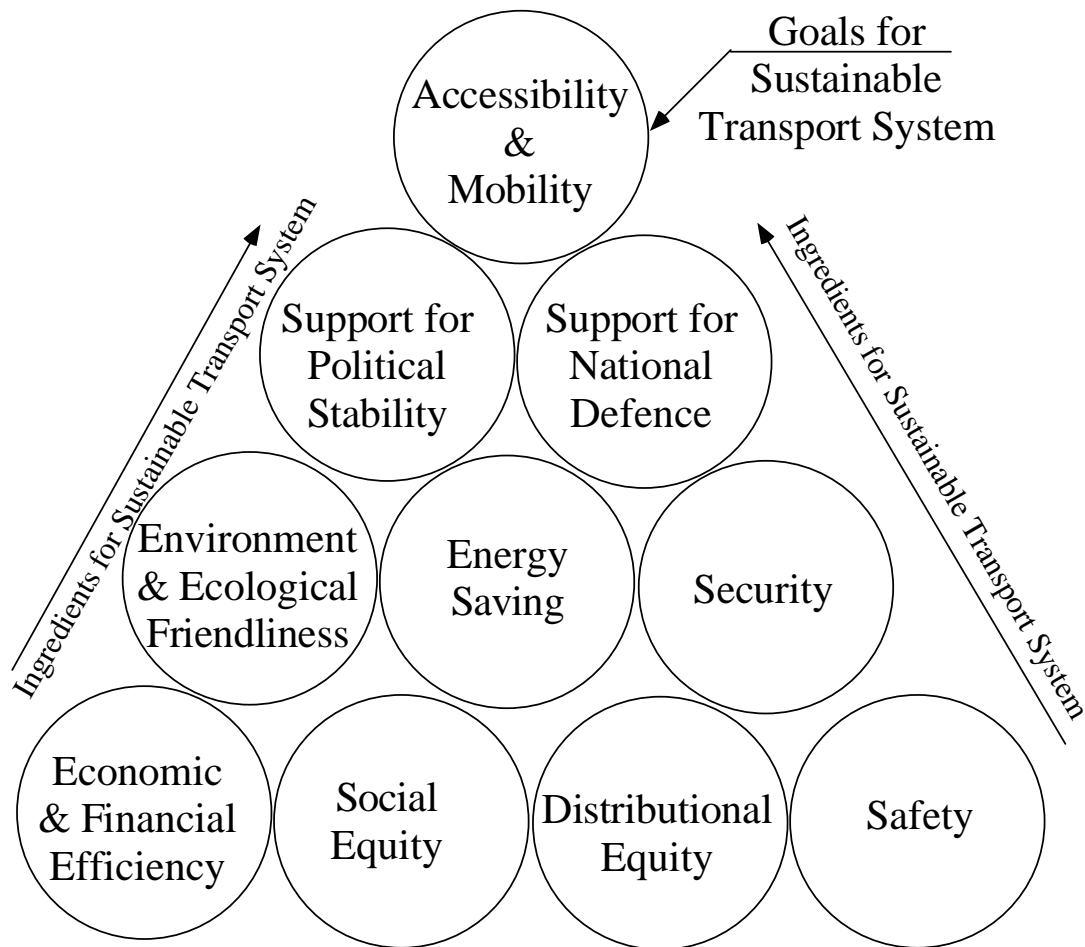


Figure 1: Pyramid of a Sustainable transport system: Ingredients & goals

Governance

The notion of governance was recently defined by several UN organizations, see Witoelar (2001), as being based on five core principles that governments have to exercise in any sector including the transport sector. These five principles are as follows:

1. Equity including sustainability, gender equality and intergenerational equity.
2. Effectiveness covering efficiency, subsidiarity, and strategic vision.
3. Accountability including transparency, rule of law and responsiveness.
4. Participation covering citizenship, consensus orientation and civic management.
5. Security involving conflict resolution, human security and environmental safety.

These five principles are diagrammatically depicted in figure 2.



Figure 2: Five Principles of governance (Based on Witoelar, 2001)

4. Framework of government roles in national transport

Based on the previous state of the art review, content analysis, personal experience and discussions with a number of transport experts and officials, a framework of the perceived roles that governments (represented here by MOT) ought to play in the national transport sector is proposed, see figure 3.

In the developed framework, the perceived roles of a MOT are classified into three main categories. The first category includes those roles that are necessary to enable the performance of the main roles, so called enabling roles. The second category includes the main instrumental roles of a MOT. The third category includes those roles that are supportive of the main roles. All of these are shown in a logical sequence within the framework. These should be pursued by all authorities, and agencies under the MOT. Such roles are meant to be practiced for each national transport subsector i.e. road, rail, air and inland water transport as well as for infrastructure, passenger transport and freight transport. These roles should aim at achieving an optimum mix of the following set of strategic goals, which present the basis for attaining a sustainable transport system:

- Accessibility to all,*
- Mobility for all,*
- Economic & Financial efficiency*
- Social Equity for all,*
- Distribution Equity for all*
- Safety for all,*
- Security for all,*
- Environmentally friendly for all,*
- Energy Saving*
- Political Stability*
- Support of National Defence*

In the following sections, a discussion of each of these roles is presented. It should be noted that any reference to government in the following sections is meant for the ministry/department of transport.

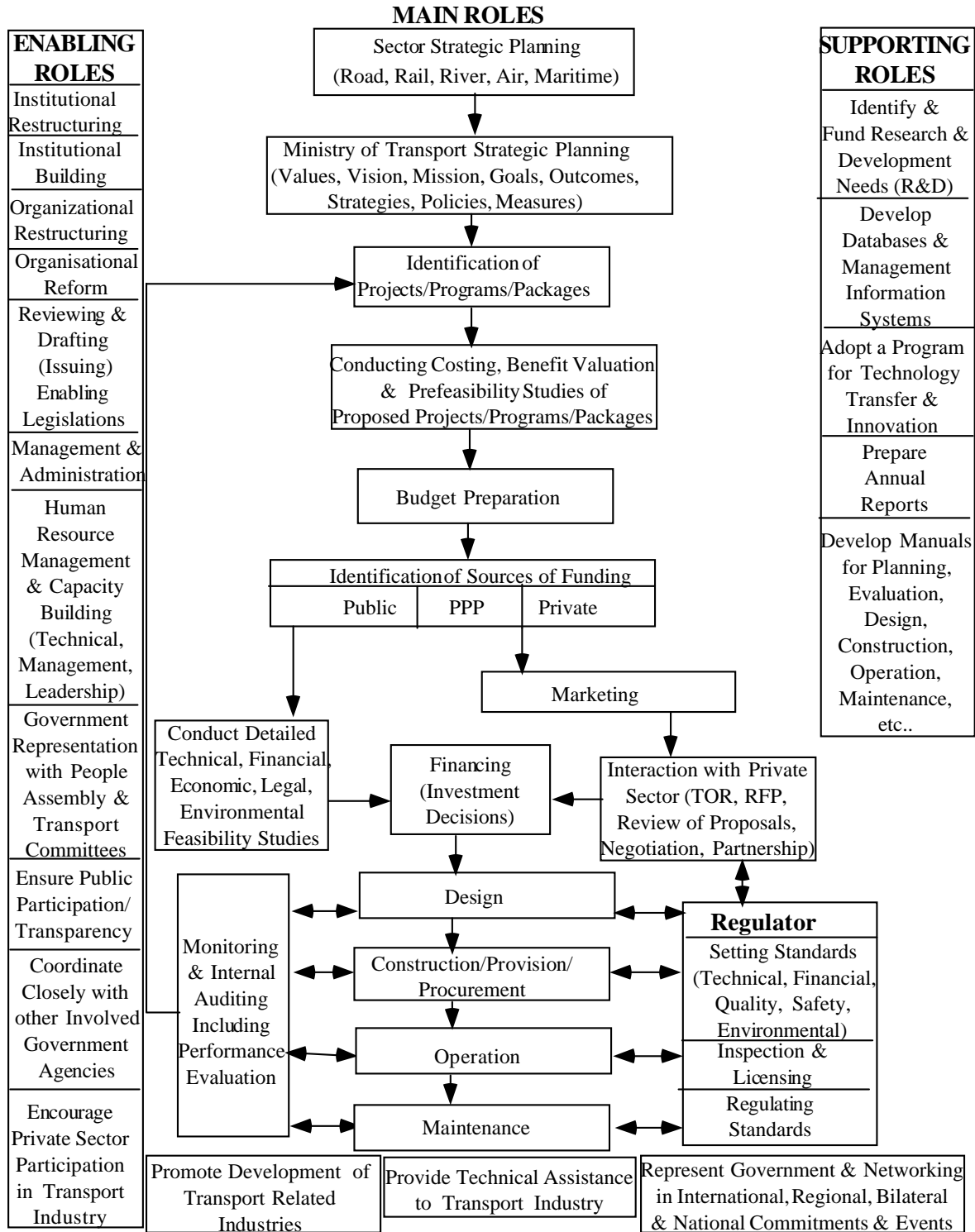


Figure 3: Framework for roles of ministry of transport

5. Enabling roles of ministry of transport

Enabling roles can be defined as those roles that ought to be pursued prior and in parallel to pursuing the main roles. Such roles represent the ingredients necessary for a MOT to perform its main roles. Some of these were identified as necessary in order to accommodate the changing environment in which transport sectors currently operate across the world. A discussion of each of these roles is presented.

1- Institutional Restructuring: This entails reorganizing existing authorities and agencies. Reorganization can take different forms such as changing the role or the legal structure of some agencies, innovating new agencies, combining existing agencies together, splitting other agencies, and dissolving agencies. A review of restructuring and reform of the transport sector based on an international perspective was presented in Oster and Strong (2000).

2- Institutional Building: Building the necessary capacities required for new added institutions as well as for institutions acquiring new roles to perform is a necessity. Capacity building of institutions involves four types of resources, namely human, financial, physical, and information.

3- Organizational Restructuring: Reorganizing the existing departments and divisions within an organization can take different forms such as changing the role of some departments/divisions, innovating new departments, combining departments together, splitting other departments, and dissolving departments/divisions

4- Organizational Reform: This entails internally reforming organizations through downsizing, rightsizing, commercialization, corporatization, improving working practices standardization of work and deregulation. A review of the experience of developed countries in terms of restructuring and downsizing of transport agencies due to budgetary constraints is presented in NCHRP (1999).

5- Reviewing & Drafting (Sometimes-Issuing) Enabling Legislation: Current legislation, rules and laws should be all reviewed. Outdated laws to be abolished, while new suitable laws to be issued. Committees to examine existing laws and propose changes as well as to draft new laws ought to be established. Such committees should be permanent to allow for continuous updating of laws to worldwide standards and common practices in the transport industry.

6- Management and Administration: Management of transport organizations is becoming an increasingly complex and sophisticated task. Managers have the task of producing results in an efficient and effective manner. Managers are faced with the task of managing transport assets that need modernization with a work force that lack skills and sometimes loyalty to the organization as well as with limited available financial resources. Additionally, in many countries management of transport organizations is not autonomous with government dictating rules and practices. All this have to change starting with selecting high caliber managers possessing potential leadership skills, giving them necessary power and incentives to exercise their role without government intervention and holding them accountable for their work.

7- Human Resource Management & Capacity Building: Indulge in programs of human resource management as well as technical and management training that aim at upgrading the work force as well as raising their morale. Programs should be targeted at creating an environment of ownership and participation of employees towards achieving the stated roles and strategic goals. Other important aspects related to management of human resources include building groups of people in team structures; more delegation of responsibilities and decision making power; and instigating a feeling of ownership among employees through consultation and incentives. Company employees to have a share of the profits, incentives to be awarded fairly to dedicated workers and in accordance with their levels of performed work.

8- Strong Government Representation with Parliament and Transport Committees: The MOT and its affiliated organizations should be striving to establish good relations with parliament members, explaining for them its strategic goals, and how these are pursued.

Transparency and honesty accompanied with a high level of public relations are key to such relation.

9- Ensure Public Participation & Transparency: As with people representatives, the MOT should indulge in programs that allow the participation of the public at all levels of planning and implementation of projects that affect their lives. This is meant to ensure a high level of transparency with the public. Such transparency is a key asset for the MOT in case of unforeseen failures.

10-Coordinate Closely with Other Concerned Government Agencies: A key to the success of the government in transport sector is to be able to coordinate its efforts and sometimes conflicting interests to be channeled in one path. This is particularly a critical issue in the transport sector, which is a sector under the jurisdiction of several government ministries and agencies. The MOT should be the key player in bringing such level of coordination into existence.

11- Encourage Private Sector Participation and Partnership: Governments across the world are faced with financial difficulties and deficits. A high need arises for modernization of existing transport systems, as well as adding more transport infrastructure and services to meet increasing demands. This should be provided with efficient business oriented operation of transport services. Over the past decade, the private sector was involved in lots of transport projects in different ways across the world. There are many ways to bring the private sector into the transport market. These should be fully pursued with the intention of allowing a full participation of the private sector either through privatization agreements or through partnerships between the government and the private sector.

6. Main roles of ministry of transport

Main roles can be defined as those roles representing the core tasks mandated to a MOT. As shown in figure 3, some of these roles are interdependent and ought to be pursued in accordance with the perceived framework. A sequential discussion of each of these roles is presented.

1- Strategic Planning: Developing a strategic plan is the first key and most important role that a MOT should perform. A strategic plan should take into consideration those plans drawn by other concerned affiliated organizations. Such a plan should be also developed in light of the state strategic plan. The following steps/tasks are involved in preparing a strategic plan:

- Setting values for the MOT
- Defining the vision and mission statement for the MOT
- Determining the strategic goals and strategic outcomes
- Identifying a continuum of necessary strategies, policies and measures that can be followed to attain the preset strategic outcomes
- Conducting demand prediction studies of people and goods movement, (in terms of number of trips by location, time, and required level of service), on transport modes and networks.

2- Identification of Projects, Programs, Packages: Demand prediction is always followed by the development of alternative transport schemes (projects/programs/packages), in terms of capacity and level of service, to satisfy or adapt this demand. This is concerned with proposing a set of projects/programs and packages, taking into consideration budget and other constrains as well as challenges and opportunities, to be implemented with the objective of achieving the outcomes of the strategic plan. In this context, projects and services that require subsidy and the degree of subsidy and the methods to deliver such subsidy to its targeted population are also determined. It has to be noted that in the past, transport demand was uncritically accepted as given and transport planning was oriented towards satisfying this demand. Currently the orientation has shifted towards managing an ever-increasing rise in transport demand, see Owens (1995).

3- Conduct Costing, Benefit Valuation and Prefeasibility Studies: In order for the proposed projects to be considered further, prefeasibility studies are conducted to roughly determine whether

such projects are expected to be feasible or not. In conducting such analysis, costing of project items as well as valuation of potential benefits are conducted.

4- Budget Preparation: Budget preparation is an important task, where those programs proving feasible are budgeted and reported in an annual budget document. Such document is submitted to official bodies responsible for financing government investments e.g. ministry of finance or treasury department.

5- Identification of Sources of Funding: Traditionally, governments relied on official sources for funding their projects and investments. However, this situation have changed where non-traditional methods of finance are more thought of. Such methods include value capture techniques, public private partnership and privatization. It is the responsibility of the government represented by the MOT to explore alternative funding mechanisms.

6- Marketing (Raising Funds): As mentioned previously, private sector finance has become one of the sources, if not the main source for funding projects and investments. However, the pool of private sector funds is still limited and competition to attract international, regional and local private sector entrepreneurs is fierce. It is the responsibility of the government to ensure that marketing of its potential projects is up to the standard necessary to attract and raise funds from the private sector.

7- Interaction with Private Sector: Strong government involvement is expected between government and private sector representatives. It is usually the case that private sector would select high caliber delegates to represent it in vital issues such as concession negotiation and contract design. On the other hand, governments are not ready in terms of building its human capacity to meet such vital tasks. In addition, delegation of negotiation power is not fully granted. It is often the case that government representatives have to terminate meetings without real decisions so as to have time to consult with high level officials.

8- Conduct Detailed Technical, Economic, Environmental and Legal Studies: Despite difficulties of definition, measurement, valuation and aggregation, rigorous technical, economical, environmental and legal appraisals of those budgeted schemes should be conducted. This is to take place prior to the implementation or concessioning of such schemes. Such appraisals serve several important purposes, namely:

- Revealing relative magnitudes of costs and revenues for considered schemes.
- Indicating the likely rate of return on capital invested in proposed schemes.
- Providing a coherent framework for justifying investment decisions in considered schemes.
- Providing information necessary for public participation in planning of considered schemes.
- Assisting politicians and planners in their task of explaining to the electorates the basis on which decisions has been taken.
- Assisting decision-takers in establishing priorities and initiating new schemes.
- Providing the necessary yardsticks, standards and other constraints with which the future outcome of the considered schemes ought to be checked against (regulated).

9- Financing (Investment Decisions): Once appraisals have been conducted, the next step is to ensure and secure the availability of necessary finance either through government sources or private sector financing.

10- Setting Standards: An important role of governments, today, is to set the necessary standards for projects. This is more crucial with the involvement of the private sector. It has to be remembered that the main role of governments is to protect the public from any abuses resulting from monopolistic behavior as well as to ensure the provision of services in accordance with preset standards. Such preset standards should involve technical, price, quality, safety, security and environmental elements. Additionally, it is also the responsibility of the government to maintain competitive markets and to prevent monopolistic mergers, or creamskimming behaviors. Developing regulatory bodies and skills (legal, technical, economic, financial, safety, security, environmental) that are necessary to develop standards, and negotiate contracts with private sector is an absolute necessity.

11- Design: Design of transport infrastructure is usually contracted to reputable consultants. It is the responsibility of the government to ensure the implementation of the process of selecting consultants in a transparent fashion as well as to have the technical skills to interact with consultants and approve their final designs.

12- Construct/Provide/Procure: In most countries governments are still the main source for financing the construction of transport infrastructure projects. However, construction activities are usually contracted to big reputable contractors in accordance with Terms of Reference (TOR), Request for Proposals (RFP), bidding and selection process. On the other hand, the role of government is diminishing in areas of providing transport services and hence procuring rolling stock except in the railway sector, where still in many countries, the government is the main provider of rail transport services.

13- Operate: As mentioned, the role of government is diminishing in areas of providing and operating transport services except in the railway sector, where still in many countries, the government is the main provider of rail transport services. In most countries, the operation of intercity passenger and freight road transport services is either privatized or contracted out. As for passenger and freight transport using air, the situation is mixed, where in some countries, a national airline dominates such activities, while in others, a mixture of public and private companies are operating. Of course operation of a fleet of transport modes involves activities such as market analysis, pricing, marketing, fleet operation, inventory management, cost accounting, fleet maintenance and ticketing. It is generally accepted that the private sector is more capable of conducting these activities in an efficient and effective manner. However, this does not mean that the public sector cannot do this as well. The question is who can do it better and more efficient.

14- Maintain: In many countries in the world, maintenance of publicly owned transport infrastructure such as roads, railtrack, etc. are contracted out to specialized maintenance contractors. In case of concessioned infrastructure, the concession company might have the capabilities to perform maintenance works or it might turn to subcontracting. It is also the responsibility of operators to maintain their fleets and to keep them up to an adequate acceptable standard for inspection and licensing purposes.

15- Inspection & Licensing: Inspection is a prerequisite for allowing the private sector to be involved in the operation of transport services. If all entry standards are met, the private sector is allowed through issuing licenses to operate in the transport market.

16- Regulating Standards: Providers of transport infrastructure and services should be closely monitored by regulatory bodies to ensure that preset technical, pricing, quality, safety, security and environmental standards are met. Developing regulatory bodies and skills that are necessary to regulate provision of transport infrastructure and service in a manner that promotes competitiveness rather than suppress it is an absolute necessity. Mandates for such bodies should include:

- Creating a competitive structure
- Defining access rules
- Preventing economic predation
- Controlling monopolization
- Maintain quality, health, safety and environmental standards
- Enforcing contracts
- Supervision and control
- Monitoring contract conditions/performance
- Safety and environmental monitoring
- Control of prices

17- Monitoring & Auditing (Including Performance Evaluation): In order for the transport sector to move forward, its performance has to be assessed (audited). This is meant to identify problems that are hindering the sector and need to be overcome. It is certainly the role of

government agencies to identify problems and potentials, select courses of action, monitor improvements, and evaluate results.

18- Promote Development of Transport Related Industries: In most industrialized countries, there is a strong industry for transport related products such as construction equipment, construction material, locomotives, train wagons, buses, heavy goods vehicles, data collection and traffic signal equipment, etc. Nowadays, programs of Intelligent Transport Systems (ITS) and Intelligent Vehicle Highway system (IVHS) are extending this industry to sophisticated and technology advanced products. Governments in developing countries should be looking at ways to promote such industries.

19- Provide Technical Assistance: Governments should have the capacity to provide technical assistance to those parts of the industry requesting it. Even if governments cannot provide such assistance, it should have the necessary mechanisms to draw such assistance from the right sources.

20- Represent Government & Networking: A government through its MOT should be involved in all international, regional, bilateral & national events. These include meetings, committees, agreements, conferences, etc. It is through these meetings that government representatives get to know the state of the art in all transport aspects, develop networking and relevant connections, and strike good deals for their respective countries.

7. Supporting roles of ministry of transport

Supporting roles can be defined as those roles that are meant to assist a MOT in performing its main roles in an efficient and effective manner. A discussion of each of these roles is presented.

1- Identify and Fund Research and Development Needs: Funding research and development is a key to the advancement and sustainability of transport systems. Currently, technological advancements in all fields of transport are occurring very rapidly. Such advancements need to be identified through internet, conferences, meetings and exchange visits.

2- Develop Databases and Management Information Systems (MIS): The development of data bases and MIS is a necessity for performing all of the stated government roles in national transport and particularly in making well informed and better decisions. Sustainable programs of data collection, compilation, coding, analysis and presentation should be maintained. Information systems using latest database and information system management techniques should be developed. Reporting and dissemination of data and information are vitally important for the well being of a transport system. Data and information can serve several purposes, including reporting performance, developing and using models, evaluating alternatives, policy and decision making, monitoring and post evaluation, marketing, research and development, etc.

3- Adopt a Program for Technology Transfer & Innovation: Introduce technology transfer by adopting and adapting technologies in the various fields of transport activities such as construction, operation, maintenance etc. Additionally, the government should take initial steps towards developing a local industry for technology development. In this respect, the government should promote the creation of a transport technology market.

4- Prepare Annual Reports: Produce reports portraying strategic plan, annual report, budget statement, etc. These should be well produced as a marketing and information dissemination tools for the public, the private sector and politicians. These should be also available on the internet.

5- Develop Manuals/Guidelines: Manuals and guidelines should be developed that cover all the relevant aspects of the generic transport activities of planning, evaluation, design, construction, operation, maintenance, etc.

8. Reinventing government role in national transport

In order for a MOT to be able to perform the above-perceived roles in an efficient and effective manner, reinvention of government role is necessary. Such reinvention involves several important phases and stages required to create the necessary environment for performing such

roles. In this research, reinventing government role in national transport is perceived to constitute four lines of transformation actions, which fall in line with the ingredients of a sustainable transport system, see figure 4. These lines of actions include:

- Actions to achieve economic efficiency of the transport system
- Actions to achieve social and distribution equity of the transport system
- Actions to achieve safety of the transport system
- Actions to achieve environmentally friendly and energy saving transport system
- Actions to achieve a transport system that is supportive to political stability and national defence.

This paper is mainly concerned with the first line of actions, namely actions targeted to achieving the first ingredient of sustainable transport system, i.e. economic efficiency, which occurs when the least resources are used to produce a given level of output. This can be attained through three chronological phases and eight stages as discussed below.

Phase 1: Restructuring of Government Ministry of Transport

Stage 1: Institutional Restructuring & Unbundling. This entails reorganizing existing authorities and agencies, establishing an administrative structure covering and allocating responsibility for all necessary roles as well as clearly allocating responsibility between levels of government.

Stage 2: Institutional Building. This entails building the necessary capacities required for new added institutions as well as for institutions acquiring new roles to perform. Capacity building of institutions involves four types of resources, namely human, financial, physical, and information

Stage 3: Organizational Restructuring. This entails reorganizing the existing departments and divisions within transport organizations. Such organizations ought to be restructured in such a way so as to create favorable conditions both for the organization as well as for the whole transport system. These should be structured as independent, and self-sufficient business oriented corporations. Extensive reforms are required to deregulate and open up the transport sector as well as to strengthen its institutional capacity.

Stage 4: Unbundling. This entails dividing an enterprise or activity into smaller components/units, which can then be easily concessioned and provided on a competitive basis.

Phase 2: Reform of Government Organizations Affiliated with Ministry of Transport

Stage 5: Organizational Reform. Reforming organizations can take the following forms:

- Downsizing/Rightsizing i.e. reducing the organization into necessary departments or divisions and dissolving the unwanted parts of the organization
- Commercialization involving the transition of public or non-market enterprises to commercial market based behavior i.e. managing like a business. Commercialization is moving ahead with an increasing number of countries deciding to finance their transport infrastructure on a fee-for-service basis
- Corporatisation involving transformation of a state-owned enterprise or agency into a legal entity subject to corporate laws, including formal separation of ownership and management.
- Improving working practices
- Standardization of work
- Deregulation involving removal of restrictions on competition or other forms of regulation.

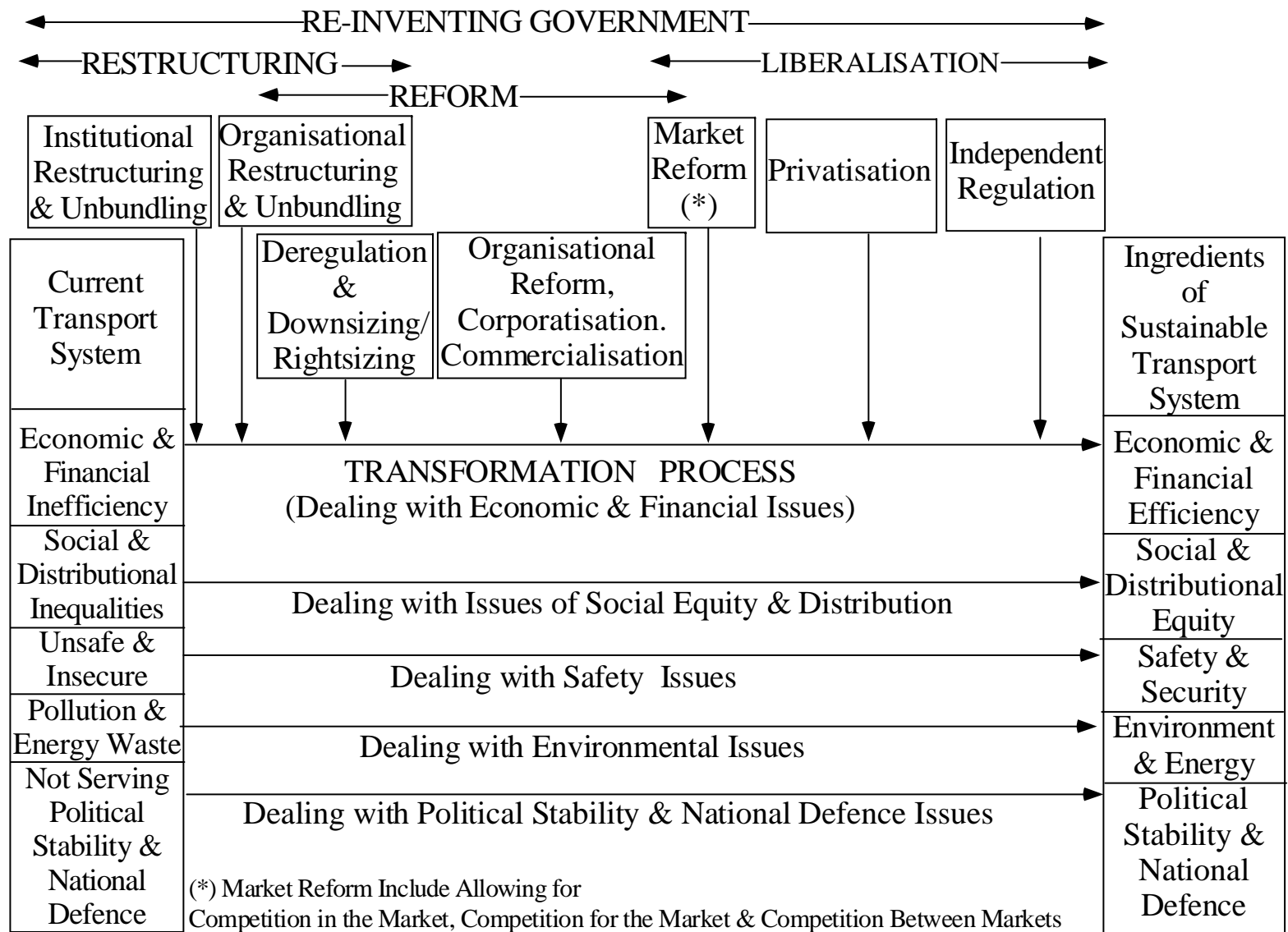


Figure 4: Reinventing Role of government in national transport: The way forward

Phase 3: Liberalization of Transport Markets

Stage 6: Market Reform. Government enterprises should open up and facilitate competition, for example, through allowing firms freedom to enter and leave the transport market. Competition is generally regarded as creating economic efficiency. Three types of competition should be encouraged:

- Competition for the market, where entry is restricted, it is possible to organize competition between operators for the right to service individual routes, to provide a whole network, or to undertake particular functions.
- Competition in the market, where individual operators, groups of operators, or modes in a market compete among themselves with no regulation on entry.
- Competition between markets, where performance of operators working in different transport subsectors can be compared and best performance is rewarded.

Stage 7: Privatization. Involving the transfer of ownership and control of public or state assets, firms or services to private investors

Stage 8: Independent Regulation. In recent years, many countries have introduced economic reforms including competition policies, commercialization, and privatization. Such economic reforms have given rise to new regulatory requirements and regulatory reform in the provision of infrastructure facilities and services. “Regulation can be defined as the activity concerned with the imposition of rules by government, backed by the imposition of penalties, designed to modify the behavior of firms or individuals, particularly in the private sector. Regulation is the sustained and focused control, normally exercised by a public agency, over activities that are valued by a community”, see UN (2001). Regulation is meant to build a framework, which retains competition in the market but provides for intervention where there is evidence that this is needed in the public interest.

9. Conclusions

In this paper, a world wide state of the art review of the roles played by four ministries/departments of transport was presented. A framework that details the roles that ought to be pursued by governments (represented by the MOT) in national transport was developed. These roles were classified as enabling, main and supporting roles. This was followed by proposing the main phases and stages for reinventing government to be able to achieve its required roles in such a world wide changing environment.

Some of the perceived government roles in national transport were discussed in detail, others were briefly introduced. It has to be noted that such framework is by no means exhaustive. For example, the two crucial roles of approving and issuing legislation as well as of enforcement were not included. Approving and issuing legislation are the responsibility of the legislative system, while enforcement of transport related laws is the responsibility of the ministry of interior.

It is recognized that government full and sustained commitment is vital to the success of its role performance. In most countries, the transport sector is undertaking several restructuring and reform steps. Based on the developed framework, the following recommendations are proposed as vital steps in ministries of transport endeavors towards restructuring, reform, and attaining efficiency.

- Legal and regulatory apparatus should be reviewed, modified and put in action.
- Restructuring through horizontal/vertical unbundling of potentially competitive activities.
- Creating competitive environment and promoting market forces in addition to commercializing and/or privatizing operating agencies
- Developing strong and capable regulatory bodies in all fields of transport
- Pricing of utilities provision as a commercial service, rather than as a public obligation.
- Reconciling with social goals i.e. designing fair subsidy schemes and allowing transport organizations to receive necessary compensations for providing state mandated subsidies.

- Developing market-oriented management and administration practices and ensuring high quality human resource management taking into consideration capacity building and enhancement of technical and leadership aspects.
- Developing a training strategy in transport and encouraging collaboration between authorities nationally and internationally to develop professional and technical skills and experiences.
- Ensuring public participation and transparency
- Coordinating closely with other concerned government agencies
- Ensuring the production of planning documents (e.g. 20 year structural plan, 5 year rolling plans, annual plans and programs)
- Identifying and funding research and development needs.
- Adopting a program for technology transfer and innovation
- Developing manuals/guidelines for design, planning, evaluation, and operation.

In conclusion, it can be noted that the transformation process described in this paper is mainly targeting four generic aspects of the transport sector namely ownership, operation, competition and regulation. Traditionally, these four aspects in many countries are/were in public hands, see figure 5. Nowadays, transformation from a fully publicly dominated transport sector to a mixture of public-private partnership is widely occurring.

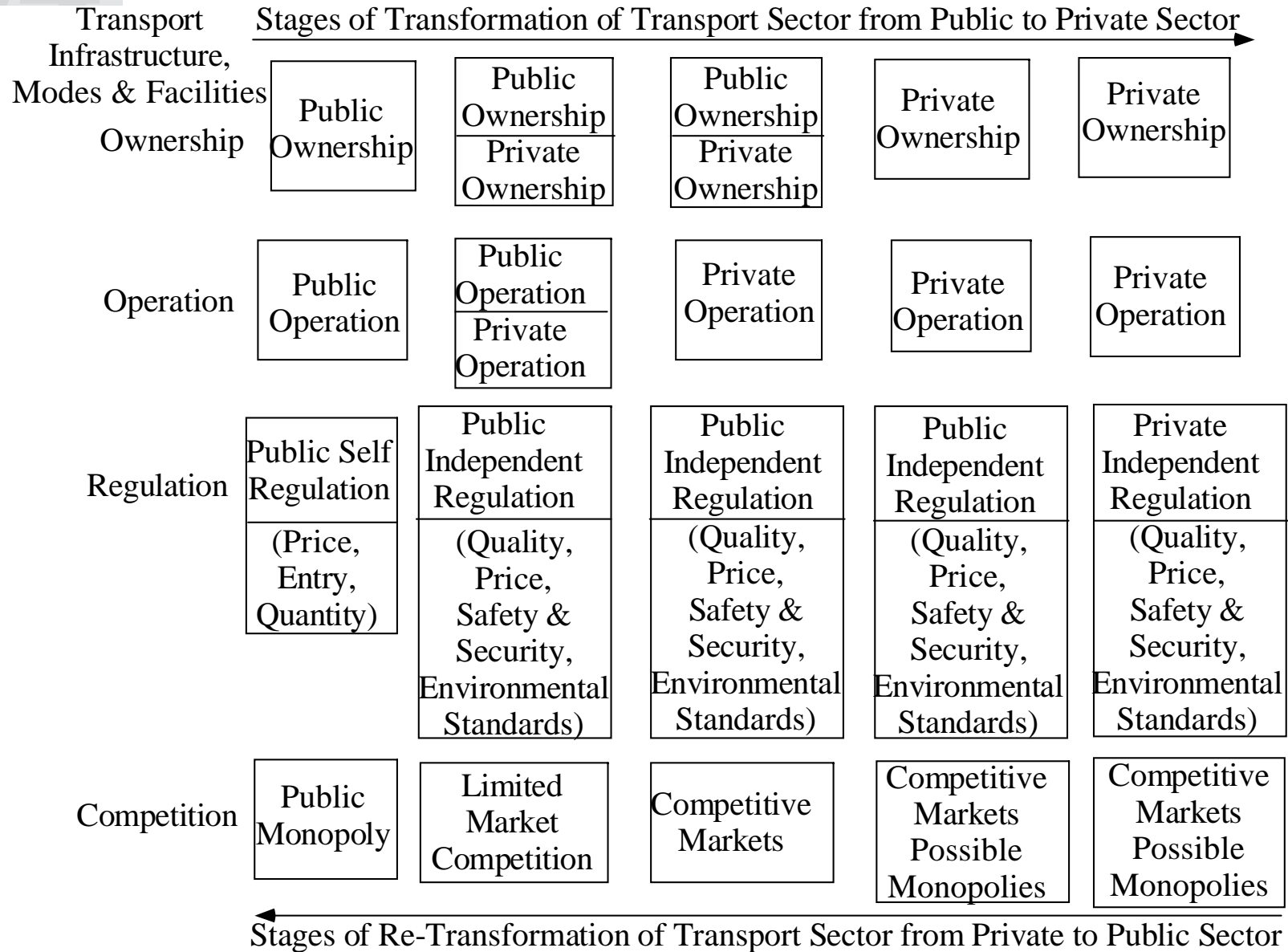


Figure 5: Ownership, operation, competition, & regulation in transport sector: Available options

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