

A New Paradigm Applied: The Transport Sector

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We are facing a new paradigm driven by a discontinuity induced by technology change, i.e. the separation of information from physical goods driven by information technology diffusion.

To recap, the new paradigm has the following factors:

1. enables a massive growth in wealth
2. reduces transaction costs
3. requires trusted custodians of information
4. enables new forms of organisations
5. changes the boundaries between organisations and the market
6. creates the self-interest for people to own information defining their person
7. requires maximum storage of data to realise maximum returns

The paradigm directly changes several fundamentals in the Transport sector and ushers in a period where more change can be expected, with new technologies and concepts changing the way goods are moved and people travel.

First, a change in the wealth of society has a marked effect on the cost of transport vehicles. We can expect deflation to reduce the costs of vehicles to the point where a basic vehicle can be available to almost everyone in all countries, and more sophisticated vehicles become practical on a mass scale. However, the variable costs of transport will rise relative to the fixed cost, especially as oil and gas shortages become acute and fuel prices increase rapidly. The increase of wealth will allow people to bid fuel prices up as people compete for scarce resources, and thus many people may not be able to afford to operate their inexpensive vehicles – despite the increase of wealth. Thus, the dominant price of transport may shift from a large fixed cost with small variable cost to a large variable cost with small fixed cost.

The second point is the reduction of transaction costs. The costs of organising movement of freight and people will drop dramatically, as automated transport management systems emerge that can allocate space and enable the economic movement of small cargos. Automated control systems become economically practical for all vehicles, enabling the replacement of humans in controlling road, rail and air vehicles, thereby reducing risk and improving efficiency. Automated payment systems base upon resource use enable targeting billing systems for private and public transport, encouraging more efficient use of resources. Local storage spaces can be increasingly used for short-term good storage, as freight is automatically forwarded from vehicle to vehicle on its way to its destination, while people can gain additional income through rental of space for freight use.

The information locating all cargo and people is essential for the efficient transport of cargo and people to the correct destinations, but affects people's privacy and security. The third point is that a trusted custodian provides an intermediary that guarantees privacy to all people participating in the transport network, while enable the automated movement of people and freight. Access to anonymous data on the entire population enable more rapid detection of emerging patterns and intervention to enable more effective services and resolve problems.

The fourth point is that new organisational forms. Social networking enables groups with common interests to organise themselves to improve the efficiency and effectiveness of their transport, through resource sharing and mapping capacity to use. Network organisations enable combinations of skills to be applied to specific tasks as required, and reconfigure themselves to meet specific demands.

The fifth point covers the boundaries between organisations and the market. The differentiation between supplier and consumer will increasingly blur, as people continually switch roles as they cooperate in the providing and consuming transport resources and storage space for freight and vehicles.

The sixth point regards self-interest in owning personal information. An up-to-date knowledge of a person's location can be used for targeted advertising (by personalising ads in a location), to enable just-in-time automated service delivery (opening doors, making a cup of coffee or tea, switching on lights and appliances, etc), to provide evidence of location as an alibi for a crime, as data for research and many other purposes. However, the same information can be used against a person by criminal elements, by government officials spying on citizen activity, such as linking people together by location as part of controlling the population, and for harassment. It is in the person's interest to control the use of their personal information, and the only practical method to achieve that goal is to have the property right over their personal information.

The seventh point is the more data on location of people and freight available, the better the quality of the transportation services and the lower the real cost to society – a consequence of increasing returns. The data is valuable beyond its real-time applications, as historical data can be used as evidence, to research trends and to provide the basis for alerting services when circumstances display unusual characteristics. The incentive is to store the maximum amount of data to enable its access for multiple purposes, thus maximising the returns from the data and the value to society.

These changes can all be predicted by applying a new paradigm of an Information economy. The consequence of these changes is a substantial improvement in the well-being of people, though at the cost of industry-wide change to realise these benefits. It can be expected that the vested interests in transport will resist change until it becomes no longer viable, as it represents a threat to their power. The ease of the transition depends on the skills and dedication of people in the sector to the consumer of their services.