

A New Paradigm Applied: The Tangible Goods 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 Tangible Goods 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, the massive growth in wealth in society is created by information becoming the dominant form of wealth in society and effectively devalues manufactured and produced goods as a percentage of average income. This deflation of manufactured goods prices is reminiscent of the mid-1800s, and will result in a greater variety of manufactured goods as greater proportion of the population can afford existing luxury items, creating a demand for new product lines.

Second, the reduced transaction cost significantly reduces the costs of creating manufactured goods, through reduced co-ordination costs of sub-contractors, simplified access to designs and automated manufacturing processes. These reduced costs reduce the fixed costs associated with manufacturing, encouraging greater customisation and accelerated innovation.

Third, there is a role for a trusted custodian to enable sharing of designs and as an intermediary between manufacturers, allowing organisations to gain benefit of design work from a larger base and access to component manufacturers without the need to individually qualify the other parties. The trusted custodian provides all parties with the assurance of the trustworthiness of the other parties and provides a mechanism to manage the process.

Fourth, the information paradigm enables new organisational forms. The reduced co-ordination costs enable new organisations to form to meet specific requirements, with resources drawn from a wide range of locations and organisational types. The flexibility of the information economy creates new opportunities for goods manufacture, including cottage industries, guilds and other historic forms that become non-competitive in the industrial era economic model but may well revive in an information economy with its different economic drivers. In particular, the need to drive innovation, to reduce energy density and improve customisation will in all likelihood encourage smaller, more flexible organisations co-operating within a large number of similar organisations around the world.

Fifth, the information economy changes the boundaries between the organisation and the market. Automated manufacturing capability will enable Customers to select products for local production, minimising transportation and distribution costs. The role of associated companies will likely change, with increased specialisation taking advantage of the greater flexibility offered by information capabilities. The use of products from different locations taking advantage of skills from different societies provides further opportunity to increased quality and innovation. The dominant large-scale manufacturing model of the industrial era will be replaced by business models based upon different boundaries between the manufacturing organisation, its Suppliers and Customers in order to achieve the benefits from the information economy.

Sixth, the niching trend in manufactured goods will in all likelihood progress to customised products for each individual, as fixed costs are virtually eliminated and competition forces manufacturers to tailor goods as tightly as possible to individual needs in order to reduce waste while competing with features. The result is the creation of information that portrays each individual's preferences, tastes and sophistication. This information could be used against an individual's interest for commercial, political or criminal purposes, thus encouraging each individual to control the use of information that uniquely identifies them. The most effective technique for an individual to control information is to have the property right over that information and to manage the use of that information directly.

Finally, the more data collected relating to manufacturing and production processes, material consumption, consumer preferences and other characteristics, the more effective the manufacturing and production sector can innovate and supply effective goods to an information economy. The increasing returns inherent in the underlying data encourage the collection and storage of as much data as possible, in order to maximise long-term gains 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 manufacture and production of tangible goods 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.