

Strategic planning in the Dutch Telecommunications Industry

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1. Abstract

The Telecommunications industry is changing rapidly. New actors are entering the market and having their own influence on the sector as a whole. In the Netherlands the regulator is playing a major role in regulating the market. New entrants on mobile and fixed communications are entering the market. The consumer is getting used to perceive high quality for less money. It is necessary for a telecommunications company to have insight in the dynamics and growth patterns of these developments and in the effects of certain strategies of the company. The questions that the company is facing are:

- *How will the market develop in the next 5 years?*
- *What is the long-term effect of regulating the market?*
- *Which competitors are serious threats for your company?*
- *Which strategies will be successful?*

To get answers for these questions KPN Research is developing a dynamic model for exploring the telecommunications industry in the Netherlands and for testing the effects of certain strategies. The model has the following features:

- *Time and money constraints from consumers from telecommunications services.*
- *Saturation levels of the market and market equilibrium's.*
- *Testing of telecom operator strategy's*
- *Market volume development*
- *Effect of competition on certain markets*

2. Introduction

Royal KPN Telecom is the main telecommunication operator in the Netherlands. There are working approximately 30000 employees within the company. The company is active in a wide variety of services:

- Fixed telephony (telephony over fixed wires)
- Carrier Services (wholesale services: interconnection between several operators)
- Corporate networks (data services for the business market)
- Internet services
- Mobile telephony

KPN Research is the Research and Development department of KPN.

KPN Research is developing a strategic telecommunication model (StratTel) for exploration of the dynamics in the telecommunications industry in the Netherlands. This model makes it possible to simulate the total telecommunication market in the Netherlands on a high level. It takes into account the dynamics between KPN,

competitors, the market and the regulator. The model will be used as input for the strategy discussions in the company.

3. Business planning in telecommunications industry

3.1 Introduction

The telecommunications industry is getting less transparent every day. Reasons for this are:

- More new entrants/actors are getting there influence on the market (regulator, competitors, etc.)
- New services are entering the market in a high speed (free internet, friends and family, ...)
- Large tariffs changes (international fares decrease with 30% per annum)

Because of all this return on sales is getting less and risks are getting high. Therefore business planning is getting more complex and more necessary.

3.2 scenario analysis

In the very hectic market of telecommunications business planning via scenario analysis is getting common. Scenario analysis for business planning is focusing on testing several strategic options for the company in external scenarios. The StratTel application is designed to facilitate these scenario sessions. Figure 1 shows the position of StratTel in the scenario sessions.

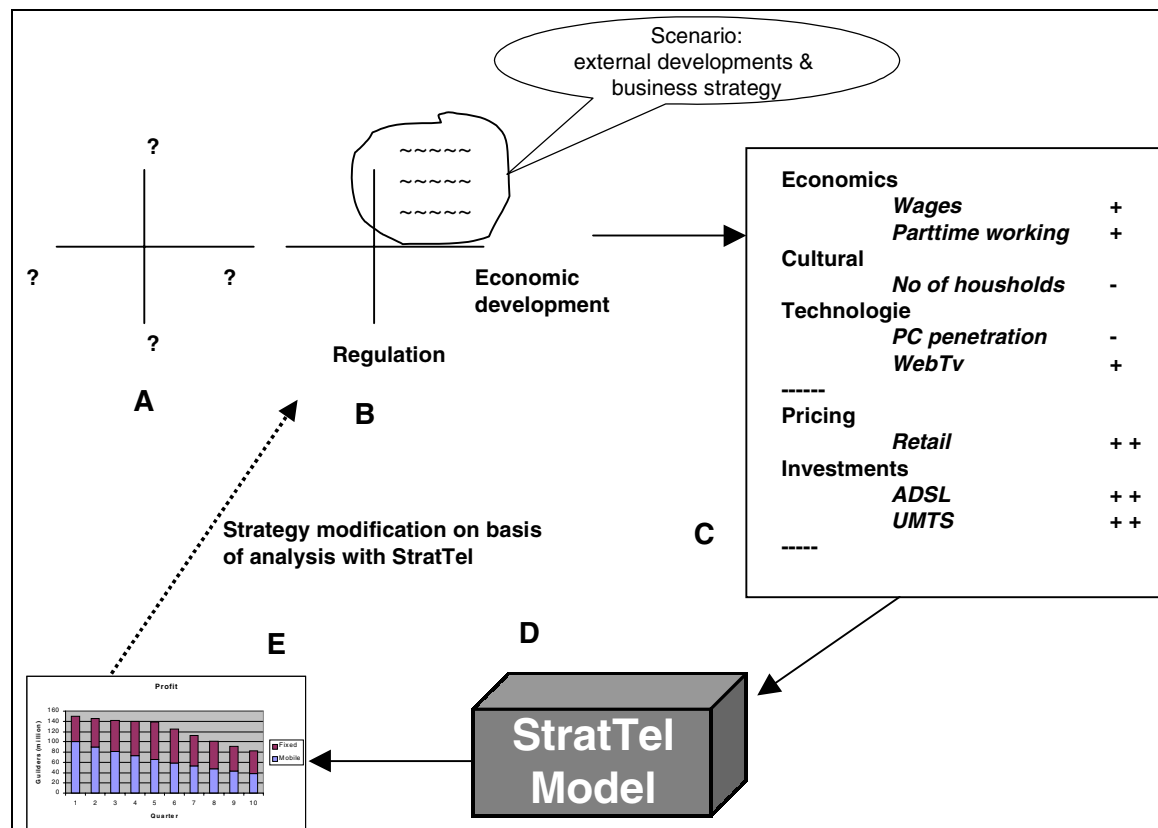


Figure 1 Strategy modification system

The StratTel model gives on the one hand information about the what should be incorporated in the scenario's, on the other hand it calculates the effect of different scenario's on the economic position of KPN and other operators.

The scenario method is in itself a well-known forecasting technique (see for a general discussion for instance [Heijden, Kees (1996)]. From discussions in the literature we can derive three essential components which should be part of any scenario.

1. An **integrated** description of the future, which pays attention to developments in all factors affecting telecommunication
2. A **plausible sequence** of events leading to this future situation, without the necessity of including statements on the probability of those events.
3. An analysis of the **present situation** and a connection between future developments and the present situation.

Because of this characteristics scenario models should by definition be incremental, with mutations of the existing telecommunication demand being calculated as a result of changes of explanatory factors. After all, future outlines and developments are only explicitly related to the existing initial situation in the case of an incremental approach.

One modelling approach that meets this demand is System Dynamics, which is by definition based on an incremental step by step forecasting approach, starting from a certain state of a system. Again we refer to some general literature for the backgrounds of this technique [Wolstenholme (1990), Morecroft (1984)]. System Dynamics models are highly flexible and aggregated, and therefore very suitable for scenario analysing, where we have to deal with a variety of interrelated long term developments.

The telecommunication industry consists of several markets (mobile, fixed, data, etc). In the recent past these markets were not very related. Recent developments showed that the telecommunication markets are getting related more and more. New services like fixed mobile integration and broadband access on mobile phones are being introduced in the market.

This is the reason why KPN Telecommunications asked KPN Research to develop a model for exploration of the whole telecommunications industry in the Netherlands. An important feature of this model is that it is not focusing on a single service (for instance mobile telephony) but it has to give insight in the dynamics between the several markets.

4. The strategic telecommunications model (StratTel)

Figure 2 describes the global scheme of the dynamics of the first version of the StratTel model. The model exists of 10 building blocks (ext. environment, volume retail market, etc.). Each building block is giving it results to several other blocks.

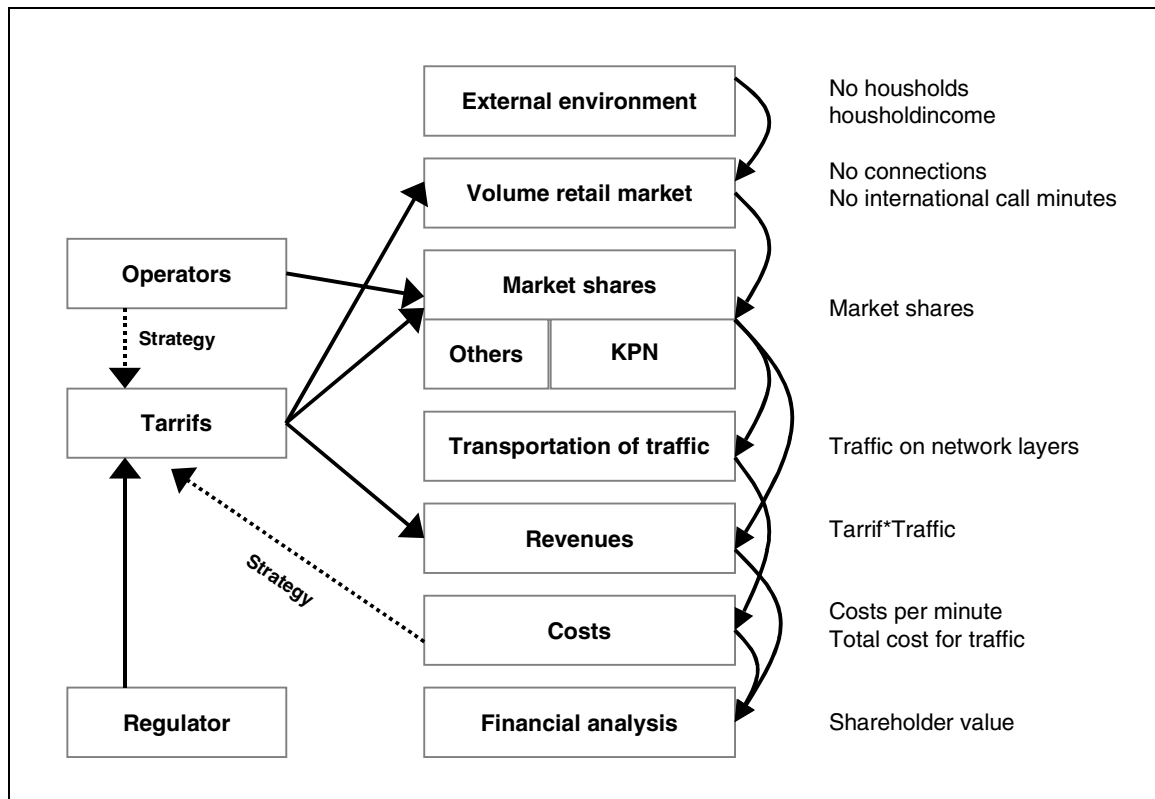


Figure 2 Global dynamics of the StratTel model

The model makes simulations on a quarterly basis. It works on 20 services (7 retail, 9 wholesale, 4 connection types) and it is possible to work with 4 different operators. The main dynamics are the feedback structures from costs to tariffs and from operators to tariffs. An operator can choose if its tariffs should follow costs or its tariffs should be matched on other operator's tariffs. The regulator can choose on which services it regulates and in what extend regulation is taken place. Also the type of regulation can be set (pricecap or rate of return regulation).

There are also a lot of small feedback structures within the building blocks (for instance limits to growth on mobile connections in the volume retail block, etc.)

5. The StratTel application

5.1 The StratTel building process

The StratTel application is being build with a sharp distinction between design, specification, prototyping, implementation and testing.

KPN Research designed the model using the typical design steps for building a system dynamics model. KPN Research also builds several prototypes of local dynamic structures of the complete model. The advantage of building prototypes is that one can test the assumptions being made for the models and one can test if the data being used is showing the right results. The specification of this design is being implemented by an external softwarehouse. The testing is being done by KPN Research.

Figure 3 shows the main input screen of the StratTel application. On the left side of the screen one can see the variable structure. On the right side one can see the actual

value of the variables. In figure 3 the tariff for mobile telephony for the operator KPN is pointed out.

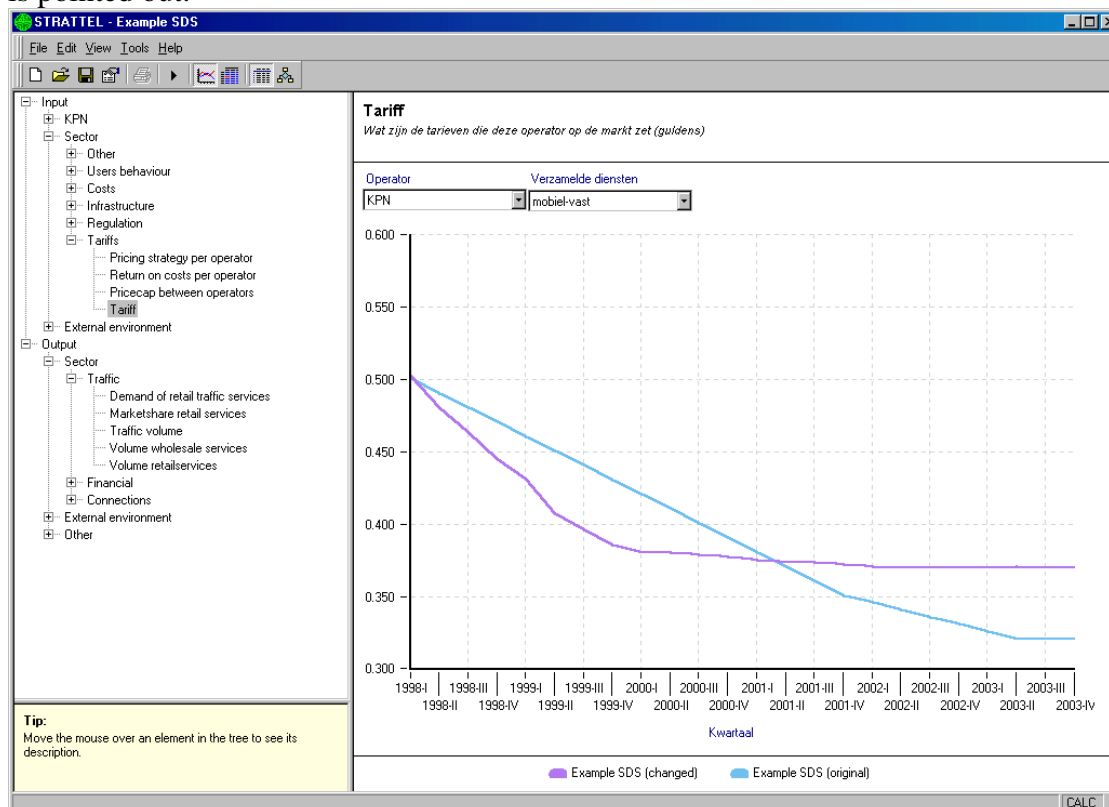


Figure 3 Screenshot StratTel model

5.2 StratTel and gaming

The application is very suitable for management games. It is possible to use the application on the same time on different machines via a LAN connection. One of the possible games is to play a multi-actor game. In this game every user is playing a different operator. The operators have to react on each other while the regulator is regulating the market. Gaming is very powerful tool to learn people in your organisation about the dynamics of their business.

6. Conclusions

- Because of increasing competition (decreasing profitability) and a fast extending market (risks and opportunities) business planning is getting more difficult and more necessary. The help of quantitative SD models can help giving insight in strategy discussions.
- Scenario analysis is a proven and still promising planning technique for corporate strategy making. System dynamics is a very suitable modelling technique for making scenario analysis instruments. System dynamics is by definition based on an incremental step by step forecasting approach, starting from a certain state of a system.
- SD models are very suitable for the making of management games. Management games are very appropriate for teaching managers the complexity of their own businesses.

References

Wolstenholme, E.F. (1990). *System Enquiry. A System Dynamics Approach*; John Wiley & Sons, West Sussex, England.

Heijden, K (1996). *Scenarios: the art of strategic conversation*; John Wiley and sons; New York.