

# Development and usage of a management game for the Dutch Telecommunication Industry

Aloys Maas & Rutger Mooy

KPN Research  
P.O. Box 421, 2260 AK Leidschendam  
The Netherlands  
Tel: +31 70 3323019  
Fax: +31 70 3326477  
E-mail: w.c.a.maas@kpn.com

## Abstract

*The telecommunications industry experiences rapid changes. New actors are entering the telecommunication market and almost weekly new merges and acquisitions are announced. In the Netherlands the regulator plays a major role in regulating the market while consumers get used to high quality for less money.*

*For a telecommunications company it is essential to have an insight in the dynamics and growth patterns of these developments and the short and long term effects of certain strategies of the company. KPN Research has developed a management flight simulator to support and to fasten this corporate learning process. The management game has been developed on the basis of a more complex simulation model of the Dutch Telecommunications Industry (StratTel) as a whole. The game focuses on experiencing some of the dynamic behavior caused by interactions between economical, political and social environment, your own strategy and competitors actions on the Dutch Telephony Market. Until now the flight simulator has been successfully used for different purposes.*

## 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.

Last year KPN Research has developed 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.

On the basis of this complex dynamic simulation model a management game has been developed. The game focuses on a small selection of the model elements to experience the dynamic behavior caused by the interactions between economical, political and social environment, the KPN strategy and the competitors actions.

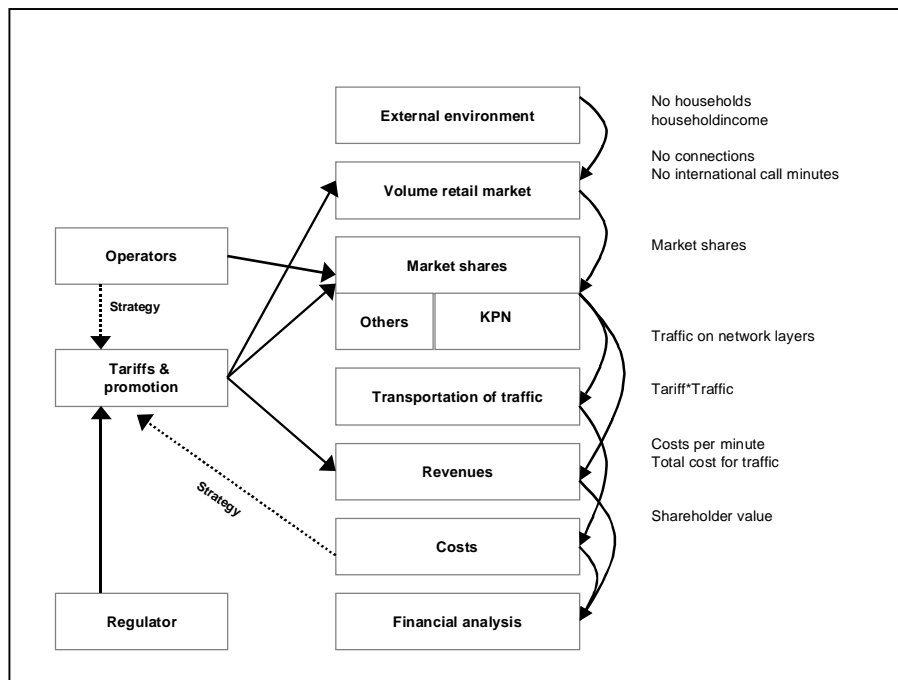
## The StratTel Model

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

- More new entrants/actors are getting their 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 this return on sales is getting less and at the same time risks are getting high. Therefore business planning is getting more complex and more important.

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 being used to facilitate these scenario sessions and to support business planning within KPN.

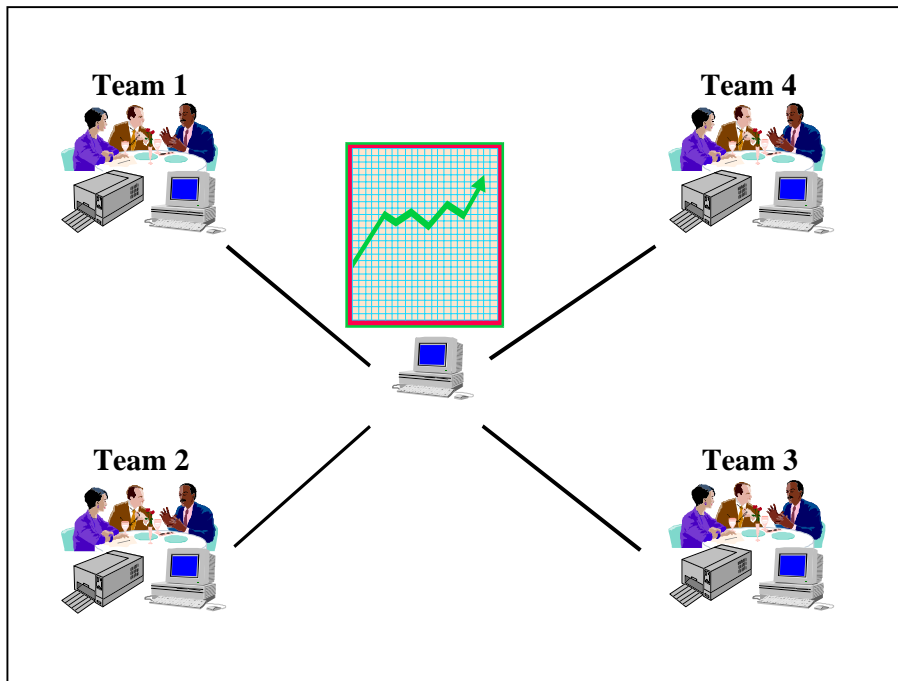


**Figure 1** Global dynamics of the strattel model

The StratTel-model consists of 10 building blocks (ext. environment, volume retail marker, etc.). Each building block gives its results to several other blocks. The SD-model makes simulations on a quarterly basis. It works on approximately 25 data, speech and connection services. Simulations include market developments as well as competitors positions for 4 different operators operating on the telecom market. 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 operators tariffs. The regulator can decide which services from with operator are regulated and to what extend regulation takes place. 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.).

## Strattel Management Game

On the basis of this model the Strattel Management Game was developed. The game is played in 4-6 teams of approximately 3 persons each. Each team plays KPN and experiences the same outside conditions such as regulatory interventions, competitors actions and reactions etc.. These conditions are set up by the producers of the game and could easily be varied between different games to adjust the game to support all kinds of realistic and strategically important situations.



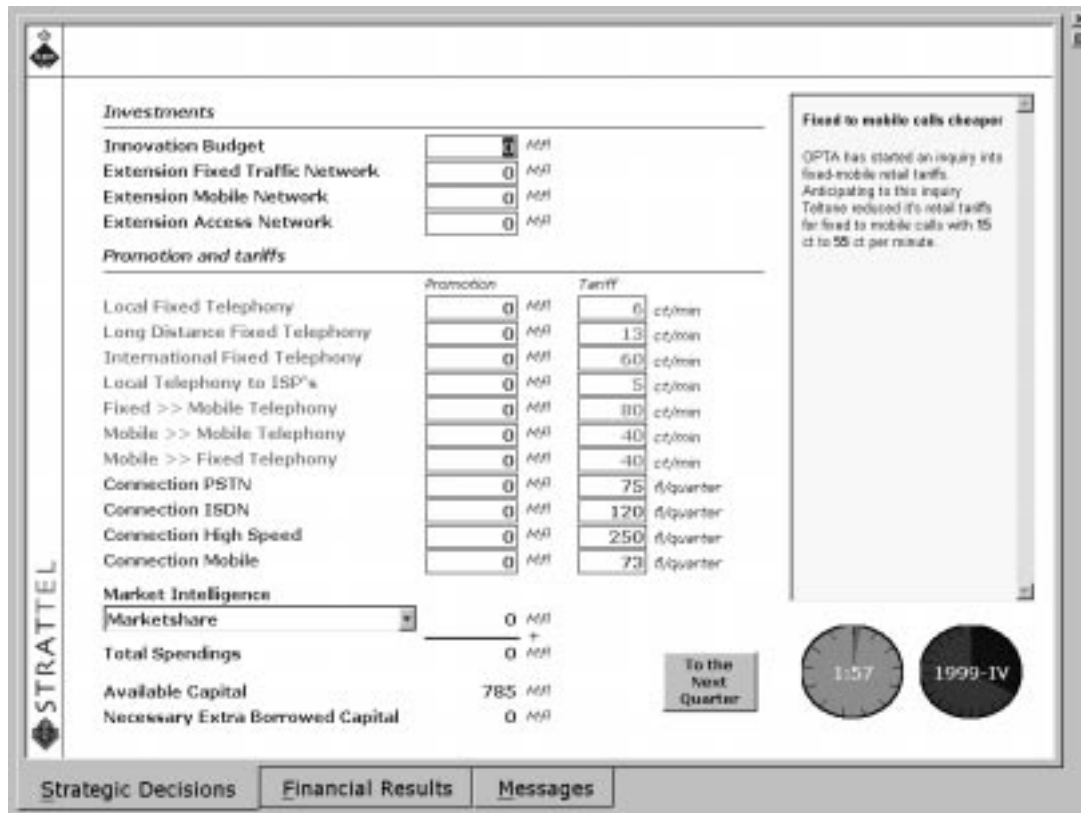
**Figure 2** Managementgame setting

Each team has a separate computer to run the game and a printer to print a wide range of results during the game. A central computer which is via a LAN connection linked to the gaming computers makes it possible to give overviews about the teams performances during the game.

While the StratTel model consists of hundreds of variables and addresses both the speech and data-market the first release of the game concentrates on the speech-market and has a dedicated set of variables to deal with. A screenshot of the inputscreen for the game is shown in Figure 3.

Each quarter the teams could make decisions in 4 categories:

1. The *innovation budget* with influences through the development of new services the market position and sales.
2. Decisions should be made about how we expect the traffic demand to grow and whether it is important to make essential *network extensions* to keep up with future demands.
3. For 11 services, 4 connection services and 7 traffic services, both the *tariff* as well as the *promotion budget* should be set.
4. A selection could be made from 3 sets of *business intelligence* information to monitor market developments and competitors tariffs.



**Figure 3** Screenshot from the gaming interface

After the teams has decided about the strategic decisions for the quarter calculations could be started. More often it happens that a restricted amount of time has passed and the calculations are automatically started. After the calculations a wide range of results are presented to the team both on their personal computer screen as via print-outs. That information includes traffic information, cashflow statement, P&L statements, investments etc..

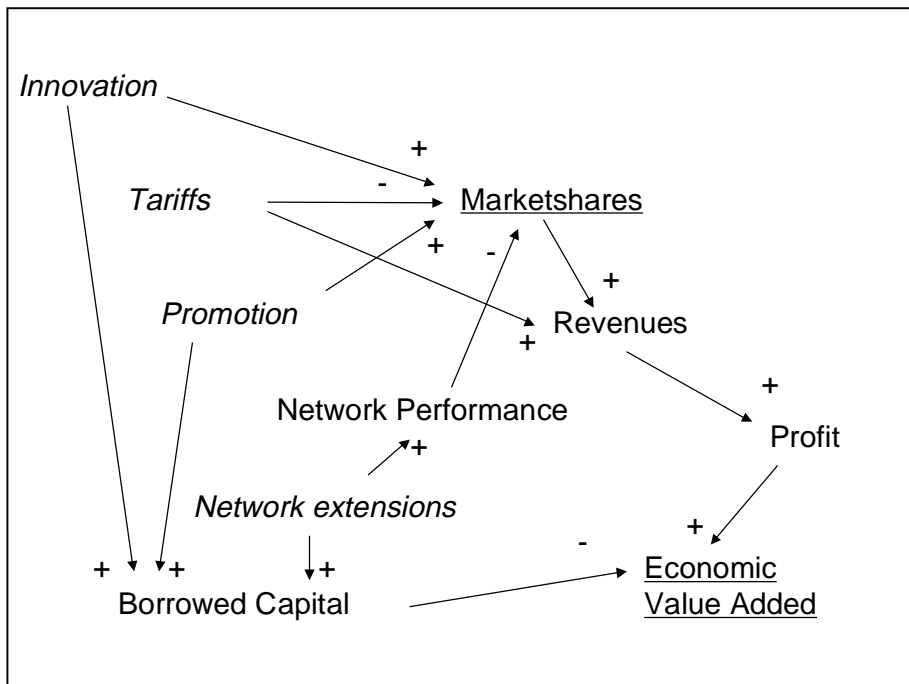
As during every game a winning team should be announced at the end of the 12-16 quarters. Therefore a mix of the two main result variables have been selected which are to a certain extend complementary:

- marketshare on the addressed markets at the end of the played period
- the economic value added, the profits of the company corrected for the cost of capital, during the played period

Although the main dynamics during the game are in essence quite simple (figure 4), the rapidly changing conditions, the events and the still complex dynamic behaviors which the teams experience are elements leading to an interesting management game.

At first the Strattel Management Game was mainly thought of as a first introduction and a promotion tool for the simulation model. The game was targeted at board of directors of the business units within KPN, financial managers and strategic planners.

The game appeared to be not only interesting to top management but it has been extensively used as an educational element in management development and recruitment during the last year as well.



**Figure 4** Game dynamics

**Final remarks**

We at KPN experienced that a gaming environment as an add-on to a simulation model has enormous benefits in promotion and introduction of the simulation model.

Some of the successful elements of the game are mentioned to be:

- A realistic simulation model combined with a simply accessible gaming interface
- A restricted number of steer-variables for the teams
- A great number of the resultvariables both important or less important but which makes it for the teams essential to make a useful selection and to learn them to focus on the really important variables
- Some counter intuitive dynamics makes playing the game a learning experience for both top-management as well as juniors.

**References**

Smits, Cyprian A. (1999). Strategic planning in the Dutch Telecommunications Industry. *17<sup>th</sup> International System Dynamics Conference Wellington, New Zealand*