

SEEING THINGS DIFFERENTLY



## **TELECOM COMPANIES IN 2015**

**Trends and scenarios**

Strategic Analysis White paper

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# FOREWORD

In 2009 Atos Consulting executed a scenario study about the telecom market in 2015. Together with clients, partners and experts we have created scenarios of the future that help corporate decision makers to navigate through uncertain times. This white paper contains the findings of this project.

The discussions we had during the project enriched our insight into the key challenges the telecom sector faces. We are very grateful to all individuals that made their valuable time available for this project. Without their generosity this white paper would not have been written.

We hope this study is a source of inspiration for all parties in the telecom market and we encourage debate about it. Therefore we welcome your ideas, critique, additions and questions. Please do not hesitate to contact us for any feedback you may have.

# INTRODUCTION

New technologies, new regulation, new services, and new customer demands: there is no doubt that the telecom sector is in turmoil. The unpredictability of trends makes it hard to develop effective strategies. To get a view on what the telecom market may look like in 2015 and to determine how telecom companies can anticipate on the changes in the market; trend analysis and scenario planning are effective tools.

Scenario planning is a proven method for strategy development in a turbulent environment. It helps to elicit trends and highlights the most important uncertainties in a market. Our approach to scenario planning results in four scenarios of the future, each with a strategy on how best to approach that future.

This report will first discuss the scenario planning method we used to develop the scenarios. Next, we report on the trends and developments that we have gathered by interviewing telecom managers and industry experts. After that we move to the core of the paper: the four scenarios for the telecom market in 2015. We describe each scenario and we identify the role and the strategy of telecom companies in each scenario.

Finally, early warning indicators are defined that help to indicate in which direction the telecom market will develop. Early warning indicators that are particularly relevant are related to patenting, investment in innovation, the entry of new players in the market, changes in the type of personnel hired and the emergence of surprising business models.

# SCENARIO PLANNING

## 1.1 WHAT IS SCENARIO PLANNING?

Change is the only certainty in the world. However, rapidly changing circumstances make the future uncertain and hence make it difficult for managers to determine their strategy. One thing is for sure: extrapolation of current trends is not a sound basis for strategy making.

But decision-making based on intuition and incomplete information is equally difficult.

Scenario planning has been developed to help companies cope with uncertainties and to deal with changing trends and developments. Originally used for developing military strategies, in the sixties scenario planning was applied to the development of governmental policies. Application to business followed later and since then the method of scenario planning was continuously improved and refined. It is now widely used as a practical tool to create awareness for strategic shifts, to get a grip on turbulent business environments, to manage risks and to generate new strategic options. One of the most successful applications of scenario planning was developed by Royal Dutch/Shell. By the end of the sixties Shell started studying 'what if' questions about their business. The very long time horizon of the oil industry made it necessary for Shell to take long-term trends into account. By using the scenario method, unexpected things were found. When the first oil crisis occurred in 1973, Shell had already thought through the scenario of sharply rising oil prices. Therefore it was able to deal with this situation more adequately than other organizations.

Different authors have developed different techniques for scenario planning. Schwartz defines a scenario as a hypothetical sequence of events that describes a possible development of the future. This white paper uses this definition. The important characteristics of scenario planning are described in the literature. For example, Van der Heijden underlines the fact that scenarios can be used to explore the long run. The long run however, is too uncertain to be adequately described by only one scenario.

Therefore scenarios sketch a set of plausible but clearly different scenarios of the future. Others have emphasized that scenarios are stories, describing possible futures that are affected by decisions made today. At any rate, scenarios are no prediction of the future. Rather, they are a tool for managing uncertainty. They are an instrument that helps to improve decision-making in different future business environments. An important part of the value of scenarios lies in the strategic discussions they generate. The strategic conversation around scenarios delivers new insights as well as strategic options. The aim of scenario planning is not to identify one specific future, but to explore possible futures and to identify the mechanisms that drive the future in a particular direction. Appendix 1 lists a short bibliography of the authors mentioned and of other important publications about scenario planning.

Scenario planning helps managers to think out of the box in a structured way. It enables the discussion about the impact and uncertainty of business trends. As a result, if the changes occur, managers will be able to deal with them appropriately because they have already thought about the consequences of those changes.

## 1.2 WHAT METHOD DID WE USE?

There are different ways to approach scenario planning and there is not one best method. To develop our telecom scenarios we have gone through the following phases: gathering trends, clustering trends, prioritize trends, determine the axes of the scenarios, describing the scenarios, describing strategic options and pointing out early warning indicators as signs for a certain scenario to become reality. In each phase we have involved either telecom managers or Atos Consulting industry experts to give input, question results and verify the findings. Each of the phases will now be discussed in more detail.

### Gathering trends

The objective of the first phase is to gather trends that are relevant for the telecom sector. The most important method we used were interviews with experienced telecom managers and industry experts.

In addition desk research was done to identify additional trends. The trends were captured and described, leading to a long list of (possible) developments in telecommunications. An overview of the trends gathered is listed and described in chapter 2.

### **Clustering trends**

The objective of this phase was to reduce the number of trends for our study, by grouping similar trends and renaming them. For example many respondents raised the issue of distribution channels, but in a slightly different wording. These statements were put together in one overarching trend about distribution channels. The clustering was done in a brown paper session involving Atos Consulting industry experts. The end result was a list of 23 trends.

### **Prioritizing trends**

This phase aimed to identify the two most important trends of our list of 23. To achieve this goal, we asked fourteen telecom managers and industry experts to rate each trend on a one to five scale. An online tool was developed for this purpose. The rating was done on two variables. The first variable was uncertainty: how certain is it that the trend will occur? Next the respondents rated the impact of the trend: if the trend does occur, will it affect your business marginally or substantially?

### **Determining the scenario axes**

Based on the data gathered, two trends were selected as being the most uncertain and having the highest impact. These trends form the axes of the scenario analysis. Next the scenarios were described and the strategic implications for telecom companies were identified by Atos Consulting industry experts.

### **Describing strategic options**

For each scenario the strategic implications for telecom companies were identified by Atos Consulting industry experts. The source of competitive advantage for a firm and the impact of the scenario on the role of telecom companies are briefly clarified.

### **Defining early warning indicators**

Of course it is important to know sooner rather than later whether a particular scenario is likely to materialize in reality. For this purpose we also defined some early warning indicators for each scenario, which may signal that the telecom sector is moving in the direction of one of the scenarios.

# TRENDS IN THE TELECOM MARKET

## 2.1 OVERVIEW OF TRENDS

Dozens of relevant trends affecting the development of the telecom industry were gathered by interviewing experienced telecom managers and industry experts. After eliminating overlap and clustering, 23 trends were identified. They are listed below.

The list may not be exhaustive but it does give an overview of elements that will affect telecommunications in the years ahead. As such it may be of use for companies as input into their strategy process. The trends are listed in random order of importance.

### 1 Impact of multichannel strategy

More and more ecommerce and customer web-portal technology will replace traditional market channels. The impact of ecommerce on distribution channels is substantial, but it is still unclear to what extent and at what speed they will transform existing channels. Telecom providers have started opening up their own stores (particularly in the mobile industry) and others work with resellers. How much business will move online? What is the right combination of traditional and echannels? How fast will these developments go?

### 2 Further commoditization

The traditional services offered by the telecom sector have largely become commodities, especially standard services like telephony and data communication. This puts pressure on the margins of service providers. Innovation and new services can temporarily break the commoditization trend. But how long will it take before competition catches up and these new services are commoditized as well?

### 3 Business model transformation

A lack of good business models may slow down the development of telecom companies. As a direct consequence of the trend towards commoditization, the question is where profits will come from in the future? Is it content, IT services, communications services? And how can telecom companies generate sufficient profit from that? Will they be able to develop better business models for new services?

### 4 Government investment

Without an active role of the government, the Netherlands, and Europe in general, may fall behind in terms of technological development. This trend does not only relate to investments in research and education, but also to investments in infrastructure and coverage to catalyze technological development in the Dutch Telecom industry.

### 5 Cloud computing

Service providers become the personal archives for customers: all photos, files, music will only be available online in the cloud. The rise of cloud computing will have an impact on telecom providers. Besides the need for more bandwidth, it may further speed up the integration of IT and telecom. But to what extent will the telecom sector become a main player in cloud computing and reap its benefits?

### 6 Bandwidth

Limited investment in and availability of bandwidth will slow down the development and consumption of new services. The ever increasing thirst for bandwidth needs to be met in order to meet customer demand and facilitate development of new services. It is difficult to finance capital intensive programs like rolling out LTE or deploying fiber to the home.

### 7 Fixed-mobile convergence

More communication devices come to the market which enable consumers to become the architect of their own fixed-mobile integration. They can use a multitude of technologies (e.g. GSM/UMTS, WLAN, ISDN/PSTN, Skype) that best fit their quality and cost requirements. Historically the service providers organized fixed mobile integration, but new technologies like the Femto-cell will enable fixed-mobile integration in the home and put customers more and more in the driver's seat.

### 8 PAN

Because of the possibilities generated by Personalised Area Networks the demand for network capacity will grow. Personalised Area Networks enable the exchange of data between computers, mobile phones, PDAs over short distances, usually a few meters. When the

use of PANs increases, development and adoption of applications and related services will require more bandwidth.

### **9 Information overkill**

The overkill of information and the continuous need to be on-line, will damage individuals' health. So far consumers have embraced most opportunities that modern communication offers. However, criticism is rising. We may wonder whether we want to live in a society where people have a better relationship with their iPhone than with their family. And the continuous availability may lead to increased stress and even addiction: the term 'crackberry' is only half a joke.

### **10 Communities**

Communities become the new home base for people. Information overkill may be a problem, but new media also create new opportunities for people to create new and meaningful relationships. Internet communities are an example.

### **11 Ubiquitous computing**

Services are available to customers in high quality, anytime, anywhere. Over the past few years we have witnessed an increased availability of services provided by telecom companies. Considering the new technologies that are in the pipeline, we may expect this trend to continue.

### **12 Transport**

Telecom diminishes the need for physical transport. With crowded roads and the negative environmental impact of cars, the search is for an alternative to physical transportation. Increased communication capabilities, like conference calls and online meetings, may reduce the need for people to meet face to face and increase telecom revenues. On the other hand, we know that a call can never replace a meeting in person. Or can it?

### **13 Sustainability**

Sustainable production will coincide with cost reduction. The energy costs of running data centers are enormous. Energy saving technologies may therefore be a huge

cost saver and reduce the carbon footprint too. But costs may increase as well, for example if telecom companies become responsible for dismantling networks or handheld devices in an environmentally friendly way.

### **14 Dual market structure**

A strict partition between service providers and infrastructure providers will emerge in the market. For some time now the distinction between service and infrastructure has been increasing. To what extent does this trend mark the beginning of a long-term change in the industry? Will it guide the process of business model transformation the industry is facing?

### **15 Brain drain**

Technological knowledge will leave the Netherlands. The need for people with an in-depth understanding of modern telecom and information technology is clear. However, the number of students enrolling in university courses in this area may not be high enough to meet demand. In addition, they may have more interesting job opportunities elsewhere. Will we witness a brain drain that erodes our innovation power?

### **16 Co-finance**

Clients will start to co-finance investments in hardware and infrastructure. Capital intensive programs cannot be financed alone by telecom companies. Co-financing is a way to deploy infrastructure, to increase coverage and to catalyze (service) developments, while sharing the financial burden with stakeholders.

### **17 R&D**

Telecom companies close their R&D departments; vendors and clients will take over the innovation process. A key question here is whether telecom companies will prove to be effective innovators in technology and hardware or whether they will rely entirely upon vendors. Concerning content and applications individual clients and specialized companies have already taken over the innovation process, often in a Web 2.0 fashion. Clients develop new applications and service providers integrate them in their service offerings.

### **18 Labor shortage**

Virtualization is so demanding on staff, that there is a shortage of qualified labor. The integration of IT and Telecom creates highly complex puzzles that few are able to solve. At the same time new ways of organizing require more flexibility, new labor relations and different company norms and values. This requires a whole new type of employee.

### **19 P2P marketing**

For a fee, clients will promote products among their peers. New marketing tactics may be needed to reach consumers and engage them. Peer-to-peer marketing may be an option: by paying people to promote products to their friends and acquaintances telecom providers may enter new markets. Monitoring and influencing discussions on user sites is another element in this regard.

### **20 Privacy**

Consumers will demand better protection of their privacy. So far people have not found the issue of privacy a to be major issue. But more recent experience shows that consumers are becoming more reticent in putting all kinds of information online. In addition concern is growing about how other organizations benefit from connecting all available online information of the individual.

### **21 Anti-trust**

The influence of anti-trust authorities increases. Anti-trust authorities are watching the telecom sector with increasing intensity. Recent interventions, for example regarding the cost of SMS text messages, show that the regulators continue to be active. The obligatory opening up of proprietary networks to competitors is another example.

### **22 Long term contracts**

Long term contracts with consumers may be forbidden. As a specific element in anti-trust regulation, the authorities aim to make it easier for consumers to switch among providers. The consequently flexibility in contracts will lead to a less sustainable business, especially for incumbents.

### **23 Government**

The government will increase its influence on infrastructure. This trend depends highly on the political signature of the government. Some political parties believe telecom is a public service and that therefore government should be heavily involved in the telecom market. Other parties believe telecom services can be provided without problems by companies competing in an open market.

## **2.2 TOP THREE MOST UNPREDICTABLE TRENDS**

The 23 trends described in the previous sections, were rated by telecom managers and industry experts on their predictability and their impact. Which trends did the respondents rate as the most unpredictable? Box 1 provides the answer. The future of R&D and innovation raises most questions for our respondents. It may very well be possible that R&D departments continue to exist; on the other hand there is an equally great likelihood that the entire R&D and innovation process will become much more vendor driven. In that case telecom companies will not develop new technologies and networking services themselves. They will source them from vendors instead. For content and applications this has already happened. Few telecom companies develop their own content. Sourcing it from specialized suppliers or using crowd sourcing techniques appears the way forward here.

The effect of information overkill is also unclear. The modern consumer is swamped with information and even more is under way. So far consumers have been able to handle all information. But will the information overkill and continuous communication run into either physical or psychological barriers? How much can people handle? There may also be another social backlash: the rising irritation about people phoning and texting during meetings, in public transport, in cinemas and at any other public place.

The third most unpredictable trend is the availability of labor. Organizations that become increasingly virtual require high levels of skills and knowledge. In addition the integration of telecom and IT requires personnel

with a specific set of capabilities. Will there be sufficient people to function effectively in this context? Behavioral change is prompted as well by the new ways of working that are developing in practice: virtual teams and flexible offices undermine the traditional social structure of a company. New social structures will develop around the work place. The coming years we will see many experiments around this. Will employees be able to cope with this constant state of flux?

Both telecom managers and industry experts listed these three trends as highly unpredictable. The industry experts however also expressed concern about the 'Government investment' trend: they believe that the investments the Dutch (and European) government will make in technology and networks are highly uncertain.

#### **Box 1: Top three most unpredictable trends**

**Telecom companies close their R&D departments: innovation will be sourced from vendors and from clients themselves.**

**Information overkill: The overkill of information and the continuous need to be on line, will lead to a social backlash.**

**Labor shortage: The virtual organization is so demanding on staff, that a shortage of qualified labor may occur.**

### **2.3 TOP THREE HIGH IMPACT TRENDS**

The top three trends that are deemed to have the highest impact on companies are listed in box 2. Increased commoditization will have the highest impact on the sector. Telecom services like telephony and data communication (including Internet) have now become basic needs for most customers. The positive side of this phenomenon is that in a recession people will not economize on them. The downside is that the margins on these services are under continuous pressure. In response telecom companies develop new services, but as the speed of commoditization appears to be increasing, these services will give telecom companies only a short break as they too will be imitated rapidly. In addition, the impact of the multichannel strategy may

also be high. If ecommerce indeed replaces traditional sales channels to a large extent, this will mean a substantial change in the way of doing business. Setting up improved ecommerce channels will require a big investment. On the other hand, the multichannel approach requires such investments as well. A wrong decision in this area will dramatically affect the bottom line, not only because of investments lost, but also because of clients switching to the competition.

Finally, when computing becomes ubiquitous this will fundamentally change the industry as well. Ensuring high quality availability of services around the clock requires a major transition.

The 'increased commoditization' and 'ubiquitous computing' trends were not only thought to be high impact trends. The respondents also believed that these trends were quite certain. Telecom offerings will commoditize and services will become ubiquitous. Hence, no company can escape factoring this into its strategy. About the use of channels the respondents are less certain: maybe ecommerce will replace existing channels, maybe not.

#### **Box 2: Top three high impact trends**

**Increased commoditization: The services offered by the telecom sector have become commodities; new services run the risk of fast commoditization.**

**Impact of multichannel strategy: The right balance between traditional and echannels still needs to be found.**

**Ubiquitous computing: Services are available to customers in high quality, anytime, anywhere.**

### **2.4 PRIORITIZATION OF TRENDS**

For creating the scenarios we need to determine the two trends that are the most unpredictable and have the highest impact. Industry experts and telecom managers have rated each trend on these two variables on a one to five scale. Per trend we calculated the average rating. Figure 1 plots the results for the 23 trends we

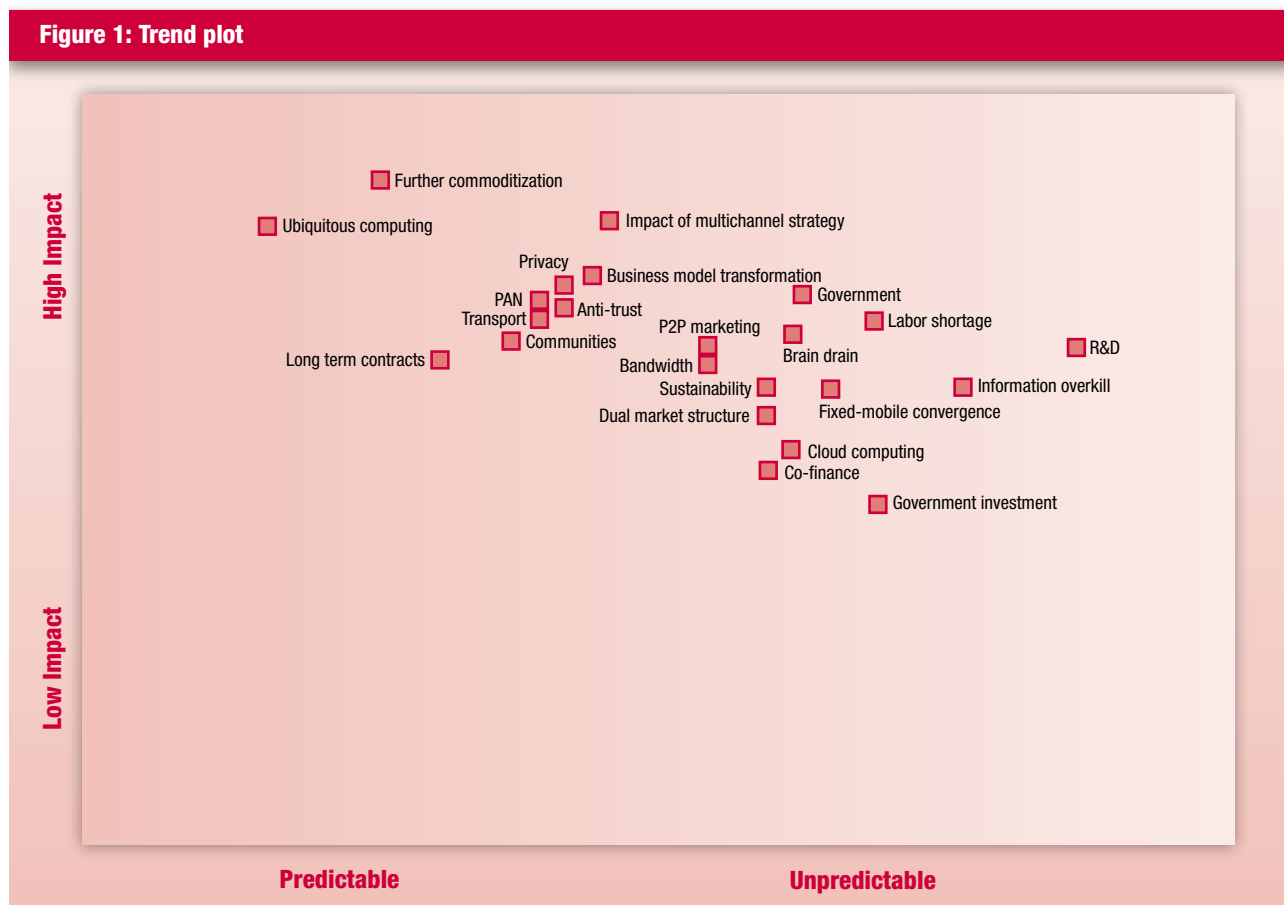
found along the two axes of impact and predictability. The horizontal axis shows whether the trends are unpredictable; the vertical axis shows whether the trend has a high impact or not.

Most of the trends we identified were rated as high impact and the majority was seen as unpredictable as well. This reflects the high degree of turbulence the telecom sector faces. The figure shows that trends 1 - multichannels, 23 - government, 18 - labor shortage, 17 - R&D are both highly unpredictable and have high impact. Detailed study of the data showed that trend 17 - R&D and trend 1 - multichannels also had low standard deviations, meaning that most of the respondents had rated these trends in the same way.

Therefore these two trends are used to develop the scenarios.

Other trends scored lower than these. You may study figure 1 to find out how the other trends were rated. For example trend 11 - ubiquitous computing will considerably affect the telecom industry, but it is a predictable trend. The lesson drawn from this is that companies should invest in meeting this trend. On the other hand, trend 4 - government investment is highly unpredictable, but the impact on business is seen as relatively low. Therefore this should not be high on the management agenda.

**Figure 1: Trend plot**



# FOUR SCENARIOS

## 3.1 OVERVIEW

Having identified the two most relevant trends, we can create four scenarios. These scenarios are divided by two questions, derived from the clustered trends:

- > Will telecom companies create their own proprietary technologies or will innovation mainly be done by vendors? If the former happens, telecom companies will have to invest in their own R&D labs. If the latter is closer to the truth, telecom companies can close down their R&D labs.
- > Does client demand require a multichannel approach or will clients move increasingly online? When all clients move online an exclusive echannel approach will work. If however, there are different client needs and segments, a multichannel approach will be the right option.

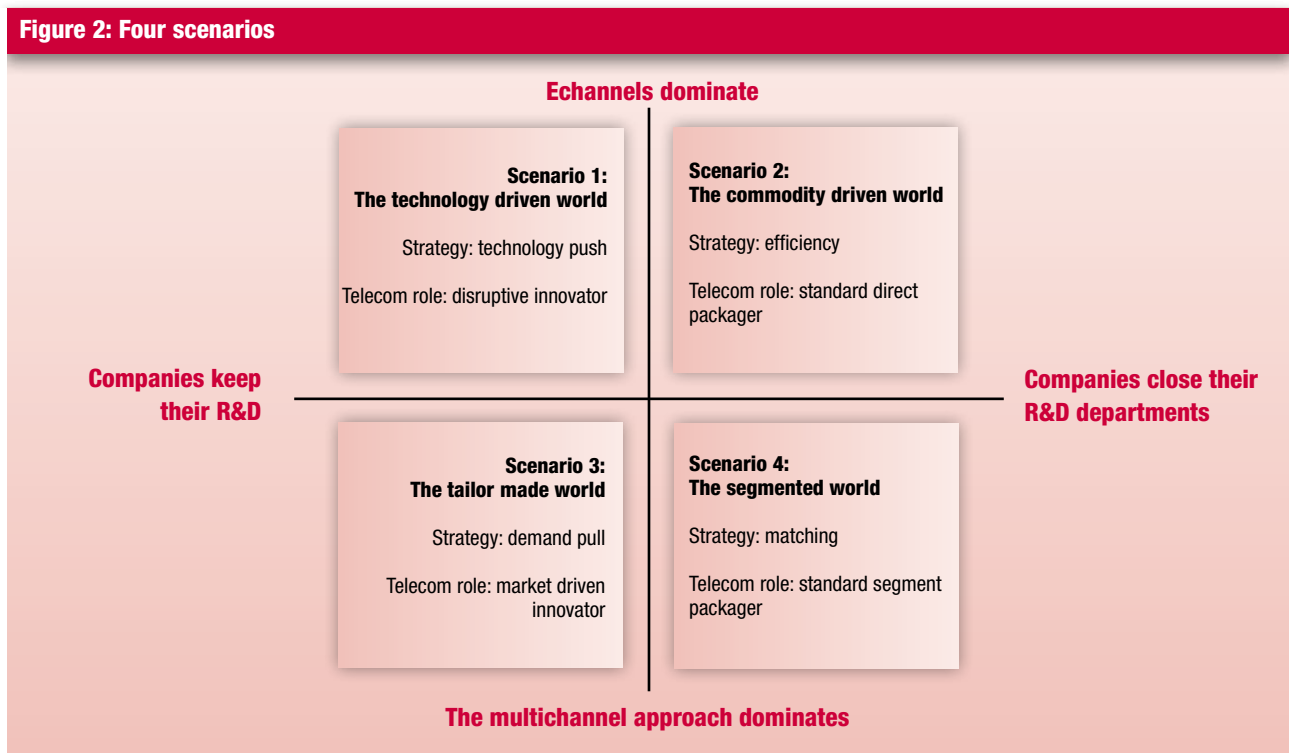
This leads to four scenarios as shown in figure 2. With each scenario comes a specific strategy, a specific role for telecom companies and early warning indicators.

Early warning indicators are market signals that indicate that a certain scenario is about to become reality. By watching these indicators, telecom companies can develop suitable strategies early on. The next sections discuss these elements in more detail.

## 3.2 SCENARIO 1: THE TECHNOLOGY DRIVEN WORLD

In this scenario technological development will continue at a high pace. Telecom companies obtain a competitive advantage by developing new proprietary technologies. At the same time customers' buying decisions are mainly influenced by the technological characteristics of the innovations. Consumers have become technology savvy and technology addicts. They will buy most, if not all, their products online. In short: telecom companies develop new technologies; consumers love them.

Under these circumstances, the most relevant strategy for telecom companies is to engage in technology push: they invent new technologies and push them to the market. Basic research gets back on the



agenda because it is the main way to differentiate from competitors. Telecom companies need to become disruptive innovators. In the very long run, beyond our 2015 time limit, this scenario may mean for example the disappearance of fixed networks as the leading technology for transporting voice and data. Disruptive innovators will find entirely new ways for data and technology transport that eradicate the current focus on fixed assets. Fixed mobile integration becomes a historical term.

Even if physical networks remain, in this scenario they will play a minor role. They are what roads are to transport: they need to be there, they need to be maintained, but apart from that nobody really cares. The customer is interested more in cars, than in the type of asphalt he drives on. Some telecom companies may specialize in maintaining efficient networks, but these companies are at the mercy of the disruptive innovators, who create the real value for the consumer.

An example of a company pursuing such a strategy in another industry is Google. It is highly innovative, only distributes services online and has completely disrupted existing business models, putting pressure on such diverse industries as traditional software, newspapers and publishers. In this scenario of the technology driven world, telecom companies that are disruptive innovators will do to the current telecom industry what Google has done to software. They will redefine existing industry boundaries completely, based on technology.

#### **Early warning indicators**

An early warning indicator that this scenario may play out is when completely new players from another industry enter the market. Especially when they make investments in seemingly negative business cases, this is a warning signal that the market may be severely disrupted. In addition, rising R&D costs may also point towards realization of this scenario.

### **3.3 SCENARIO 2: THE COMMODITY DRIVEN WORLD**

In this scenario there are no distinctive telecom technologies that give telecom companies a competitive edge. Instead, there are a number of standard technologies offered by vendors. There may be some incremental innovation, but no mind blowing new functionalities are invented. Hence there is no need to maintain an R&D department. At best a few experts with technological knowledge scan the offers of vendors for interesting stuff. Consumers recognize that technological change is incremental. As a consequence, they are all very much aware of the standards that exist and have a pretty good idea about what they want. They do not need to go to a store to check the hardware, but just order it online.

Telecom companies will have to offer the technologies and the connected services in a convenient and efficient way. Gaining economies of scale to serve mass markets cheaply is the key to company survival here. This may mean a shake out and a merger wave will reshape the players in the industry. The role of the telecom provider is best described as a standard direct packager: it takes standard technology and services from other companies, then packages them and offers them on the web with little thinking about product differentiation.

An example from another industry is Dell. Dell does not innovate its technology, but buys components from vendors. Next it ties those components together and ships the resulting product fast and cheaply to the consumer. It is a completely online business model. As most people now have an understanding of what they want from a pc or laptop, or they have a smart nephew who can help them articulate their wishes, there is no need for a store with staff explaining what the basic choices are.

#### **Early warning indicators**

An early warning indicator for this scenario is that incumbents start to move more of their business online. This may mean that the multichannel approach is losing effectiveness. Another signal for this scenario may be falling applications for patents on telecom technology. Falling patent application rates may indicate a lower speed of innovation.

### 3.4 SCENARIO 3: THE TAILOR MADE WORLD

In this world technological progress is combined with a world in which various channels need to be used to serve different market segments. Each segment has its own demands in terms of products and services and how these are to be delivered. R&D focuses on serving this diversity of market segments.

Telecom players will follow a demand pull strategy in developing innovations. They will listen to the market, identify the needs of different consumer groups and next innovate around this need. This may lead to different versions of products and services being offered in the market or to entirely different technologies being developed for different segments.

The role of the telecom companies is that of a market driven innovator. This may lead in two directions. The first one is reactive: creating innovations based on a profound understanding of consumer needs. The other road is more proactive: creating innovations that create new market segments that other telecom companies have not yet thought of.

An example from another industry is Apple. Apple innovates based on superior understanding of what consumers like. In doing so they deliver superior technology to existing markets (the iPod that replaced other MP3 players), but they also create new market segments by supporting online communities. Their approach is decidedly multichannel with much online business, but also investments in Apple stores and resellers.

#### Early warning indicators

- > An early warning indicator for this scenario may be in the hiring policies of companies. When an increasing number of companies is looking for people that combine technological skills with market understanding, or companies increase the hiring of both technology experts and market researchers at the same time, this may indicate a move in the direction of this scenario. In addition, as is the case for Apple, when companies start to focus on a specific part of the innovation (the user interface) and start to scout for complementary ideas from other firms, this may indicate that the tailor made world is getting closer.
- > Another early warning indicator is that traditional players make surprising alliances and launch plans that do not fit at all with existing business models. TomTom is a case in point: why would a traditional pc assembler work together with mobile device producers, map publishing companies and so on?

### 3.5 SCENARIO 4: THE SEGMENTED WORLD

In the final scenario, the segmented world, telecom operators source innovation from vendors and package those standard technologies for specific market segments. In many ways this scenario is closest to the current strategies of most traditional telecom incumbents. They have decreased their investment in innovation and have embarked on a multichannel strategy.

In the segmented world the most effective strategy is matching. Technology and content sourced from vendors need to be integrated and they need to be matched with the diverse market segments that exist. The company that is best able to connect the trinity of technology, content and segment will be able to reap superior profits. This requires companies to continually scan the environment for standard technology and content for them to package. In short, the role of the telecom companies is that of a standard segment packager.

As already stated, the real world example of this strategy is the telecom incumbents. In a market with these characteristics, their current strategies may make sense. However, a critique on this strategy is that it tries to be everything for everyone. There is little focus on either specific technologies or segments. Therefore the risk that niche players enter into the most profitable segments may be high.

#### **Early warning indicators**

An early warning indicator that this scenario is likely to happen is increased investments in the matching capability of non-incumbents. When non-traditional telecom players start to imitate the current incumbent strategies, the world is clearly moving towards this scenario.

# DISCUSSION AND CONCLUSION

The turbulence in the telecom sector is likely to remain high. With the aid of the 23 trends and four scenarios sketched in this white paper, companies may be able to get some grip on the most important developments in their business. It is up to them to develop the detailed strategies and tactics to cope with them. The scenarios are clearly different and require fundamentally different choices and investments. It is clear however, that the monitoring of technological developments and channels is of crucial importance for telecom in the years to come.

The minimum this paper has done is to identify a number of 'no regret' policies. Those trends that scored high on impact, but low on uncertainty, are clearly going to happen. Some of them have already been partly realized. Investing in these no regret policies is the strategic minimum for companies to focus on.

The model shows that even though the idea of convergence between telecom and IT has been around for some time, progress is made only now. The term ICT, Information and Communication Technology, was launched in the 1990s. Indeed, IT and communication have grown increasingly closer since then, but real convergence has not yet taken place. The scenarios show that in 2015 it is well under way. Telecom companies should therefore expect that players from different industries will continue to enter the market.

Most incumbents are currently betting on the segmented world scenario. With the entry of new players, it seems unlikely that their business model will be dominant in five years time. The new players that aim for scenario 1 or 2 may not be very profitable now, but experience has shown that once innovations spread, they spread fast. As the incumbents still have a good cash flow, they should be able to experiment with new approaches. However, this does require them to become more proactive than they are today in meeting the challenges from innovators.

The positive news is that the scenarios show an abundance of opportunities. Although traditional business has become a commodity, new trends are opening up new chances for growth and development. It is for the telecom companies to decide how they are going to profit from that. To retrieve maximum value from this paper telecom companies may challenge their strategy against the presented scenarios. Atos Consulting is able to support you in facilitating such a process, as well as in translating the rather abstract scenarios and the early warning indicators to your specific business challenges.

# APPENDIX 1: KEY PUBLICATIONS ABOUT SCENARIO PLANNING

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