



Roadmapping 3G mobile TV: Strategic thinking and scenario planning through repeated cross-impact handling

Margherita Pagani*

Management Department, Bocconi University, Via Guglielmo Röntgen 1, Room 4 D1-16-20136 Milan, Italy

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ABSTRACT

In order to deal with growing uncertainties emerging in the 3G wireless industry and to preserve their competitiveness, managers involved in the wireless value network should identify future success very early and develop their strategic planning on time. This study, based on a Scenario Evaluation and Analysis through Repeated Cross impact Handling, allows the generation of both qualitative and quantitative scenarios and can be used as an operative planning tool. The dynamic forces driving the scenario are based on the main principles of system thinking and multiple features. The probabilistic data have been elicited with the help of 40 executives in USA and Europe working for companies in the different phases of the wireless value chain. Findings allow to identify basic trends and uncertainties useful to develop corporate or business strategies.

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1. Introduction

In order to deal with growing uncertainties emerging in the 3G wireless industry and to preserve their competitiveness, managers involved in the wireless value network should identify future success very early and develop their strategic planning on time. A valid concept of what the future could be implies the existence of an overall conjectural framework which makes full allowance for the dynamics and complexity of the various systems involved.

To address this objective companies need to develop a scenario management approach which aims to help them to manage this complex planning situation basing on intelligible description of a possible situation in the future characterized by a complex network of influence [1] that are adjusted precisely to their enterprises.

As most of the scenarios that have been constructed in the literature have little relevance to studies of real strategic planning, the scenario management approach adopted in this study includes the principles of systems thinking [2] and multiple futures in which enterprises must perceive their environment as a complex network of influence factors which are connected to each other. With reference to the 3G wireless industry we focus on complexity described by the trends of variety and dynamics [3]. Trend of variety refers to the rising growth of the number of relevant factors related to new technologies, standard globalization, political regulations, and growing expectation from customers. Trend of dynamics refers to the dynamics of the process of changes in the industrial environment. With specific reference to 3G mobile TV services we develop a scenario based on five project phases. Aim of this study is to provide a tool useful to develop corporate or business strategies and similar elements of these strategies, such as mission statements or core competencies.

Porter's scheme of the value chain [4] is used as a tool for strategic analysis. Different scenarios have different effects on the relative importance of the activities generating added value, the configuration of the chain, cost determinants, interrelations, the sustainability of sources of competitive advantage and the choice of base strategies.

* Tel.: +39 02 5836 6920.

E-mail address: margherita.pagani@unibocconi.it.

In the remainder of Section 2, we describe the purpose of the study. Section 3 describes the research design, philosophy and implementation; Section 4 describes the principal findings of the research and explains the key insights provided in the model; Section 5 presents a discussion of plausible scenarios; Section 6 presents the strategic analysis; and Section 7 provides a summary and conclusion.

2. Roadmapping and scenario planning

Roadmap is described in the literature as a visual tool that identifies and describes specific customer requirement-driven technology clusters and specifies potential discontinuities and critical requirements related to technology decisions [5]. As described by Albright and Kappel [6] roadmaps are the base for corporate technology planning, identifying needs, gaps, strengths and weaknesses in a common language across the corporation.

At both intra-organizational (department-level) and inter-organizational levels in technology and industry, roadmapping has become a fashionable alignment tool as it combines forecasts and business strategies.

There is a wealth of literature focusing on the functions, uses and tools of roadmaps in high-technology companies [6–25]. Product-technology roadmaps in the corporate settings are used to define the plan for the evolution of the product linking business strategy to the evolution of the product features and costs to the technologies needed to achieve the strategic objective [6]. They can serve as a foundation that enable company to respond to varying customer demands for new product features, functions and price points.

As suggested by Strauss and Radnor [5] roadmapping can become unwieldy when planning is challenged by change that is volatile and rapid, systemic and unanticipated. Roadmapping incorporates in fact technology trajectories and competitive environment inputs and it assumes a straight-line projection or single scenario.

To overcome this limitation strategic thinking and scenario planning are used to identify the nature, timing and implications of a range of changes allowing managers to enhance strategic planning and highlight the implications of possible future systemic discontinuities. Previous studies [5] support the perspective that roadmapping and scenario planning toolsets have the potential to provide operational and strategic-level managers with substantial assistance.

2.1. Approaches for scenario planning

Scenarios are described in the literature as general descriptions of future conditions and events [26,27,4,28], hypothetical futures expressed by means of a sequence of temporal images [29], a technique to analyze alternative futures and develop firm strategies [30–32].

Policy makers and corporate strategists, in a variety of industries, use scenarios to develop and test the robustness of new strategies against different futures [33]. Despite its successful employment at national and corporate levels, scenario analysis has rarely been used at an industry level where competitors and partners in the same or related sectors have come together to jointly develop narratives of the future.

There is a large number of approaches for scenario projects since scenario writing was established by Kahn and Wiener [34]:

- *Intuitive logics* [35–37], are based on scenario logics, which are organized themes, principles, or assumptions that provide each scenario with a coherent, consistent, and plausible logical underpinning;
- *Trend impact analysis* [38], are based on alternative projections of different key factors, which are combined to coherent, consistent, and plausible descriptions of the future;
- *Cross-impact analysis*, are based on techniques designed to evaluate changes in the probability of occurrence of a given set of events consequent on the actual occurrence of one of them.

The value of each scenario method lies in its ability to stretch participants' thinking, introduce new possibilities, challenge long-held assumptions, update mental models, form valuable vehicles for learning and shared understanding, and often become the basis for strategic decision-making.

3. Methodology

Aim of this article is to frame a conjectural framework which makes full allowance for the dynamics and complexity of the various systems involved with the development of 3G mobile services and to generating quantitative results.

Building on the main principles of system thinking [2] and multiple features, we define in this study a scenario as a generally intelligible description of a possible situation in the future, based on a complex network of influence factors [1].

We applied the strategic thinking approach to identify the prerequisites of future success (success potentials) as a basis for development and implementation of visionary strategies. We selected this approach for the following benefits provided by strategic thinking:

1. It reflects a system or holistic view that appreciates how the different parts of the organization influence and impinge on each other as well as their different environments.
2. It embodies a focus on intent. In contrast with the traditional strategic planning approach that focuses on creating “fit” between existing resources and emerging opportunities.
3. It involves thinking in time.

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