TIMES
an Expert System for Mediaplanning

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Keywords

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Abstract

Times is an expert system for television advertising campaign design.

It elaborates a television planning with preserved balance and optimized performances. This planning is based on the whole client's data (spendings, commercials sizes, marketing target, period...) and TV data bases (audience, programs, price lists...).

What is TIMES ?

TIMES - standing for Television Intelligent Mediaplanning Expert System - was developped by Intellia for a mediaplanning agency (Mediatop) for the French TV market.

Structure

Times is composed of several expert modules developped with Nexpert, and algorithmic procedures prototyped with Nexpert and rewritten in C language. An original audience forecast model has been incorporated in the expert system to improve the efficiency of the interactive buying procedure of the campaign screens.

Purpose

The purpose of Times is to help the mediaplanner in the following tasks :

Definition of the TV campaign :Times works as an interactive intelligent filter for inputs: it defines the general strategy, the advertising performances to reach and the screens hierarchies according to these inputs.

Contruction of the campaign by selecting the
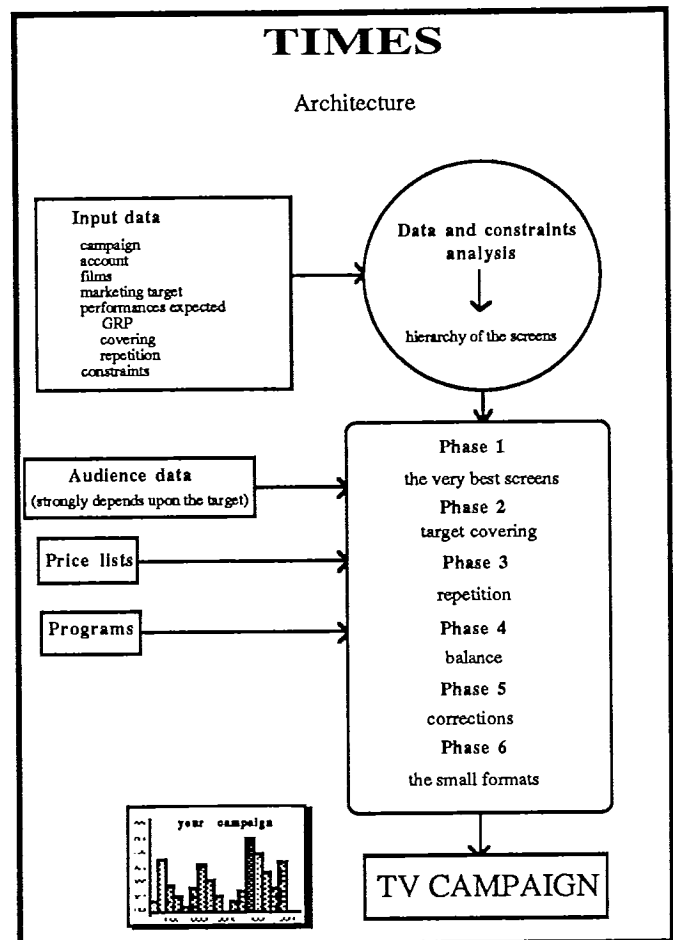
best mix of screens in a six phases strategy through interactive screens buying.

Output of the campaign planning, with statistics and expected performances

Audience forecast by a mathemetical model (today limited to the audience of the prime-time movie, from 7.30 to 10.30 PM). This forecast is very helpful in the buying process.

Architecture

The architecture of Times combines 2 microcomputers and several programs and data bases :
- an audience modelisation for any marketing target
- dBase III is used for data management: channels, programs, schedules, price-lists...
- Times itself contains expert modules written with NEXPERT (today 250 rules), and C procedures (12 000 C code lines).

Development

Building a TV campaign is typically a high level expertise job, dealing with a huge amount of information and real-time constraints. The expert reasoning combines strategic rules (like performance, balance and efficiency of the campaign...) and tactical rules (what is the best screen to choose at this stage of the planning...).

Nexpert Object contribution

The non-monotonous feature of Nexpert Object inference engine has been fondamental for success.The sensitivity needed in mediaplanning obliges the strategy to constantly go back and forth: for efficiency reasons, the tactical part of planning was written in C language but Nexpert has been essential in the chaining process of the tactical algorithms.

Development method

Times has been developped through a totally new method and Nexpert Object's features were cruxial therefore:
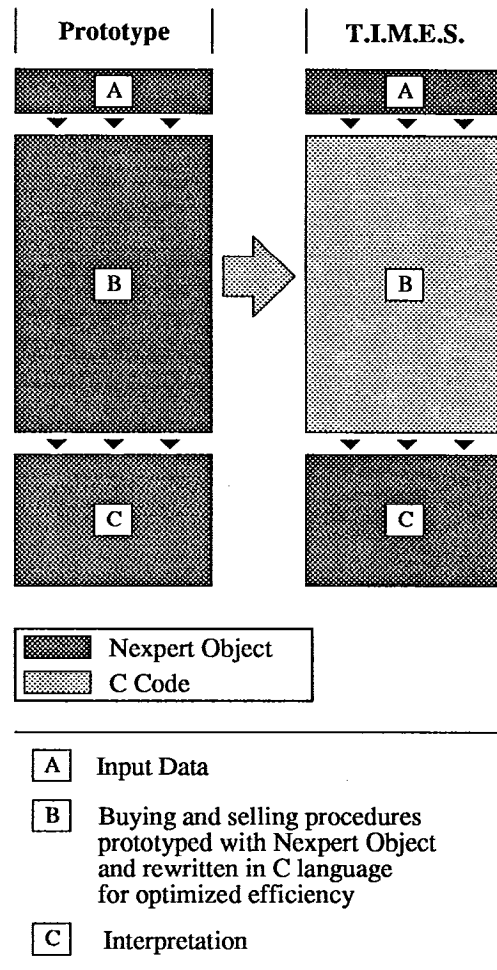
technical point of view

knowledge acquisition, which is a most important step of Expert Systems development, was made possible due to the Nexpert's interface user friendliness and knowledge representation models.

financial point of view

in order to obtain lower development costs, Intellia and Mediatop agreed to use an original method :
- the expert was trained to Nexpert (in 2 weeks)
- the expert was taught self expertise analysis
- Intellia knowledge engineers were supporting the expertise analysis and modelization.

| | Prototype | | | T.I.M.E.S. | |

Nexpert Object
C Code

| A | Input Data |

| B | Buying and selling procedures prototyped with Nexpert Object and rewritten in C language for optimized efficiency |

| C | Interpretation |

Development history

The expertise analysis and modelization was about 8 months long, with 1/2 to 1 day a week.

The knowledge base was prototyped with Nexpert, and then recompiled in C language in order to obtain fast algorithms (3 months).

The user's interface was designed in 1 month, and the tests and validation of the system was also 1 month.

Nexpert Object advantages

An unexpected Nexpert Object advantage was to allow this time and money saving procedures and therefore made this development viable.

An other fondamental feature of Times is the expertise analysis implemented with Nexpert Objet at the end of every session: this allows the user to dissect in every detail how and why the

final selection and audiance forcast were done.
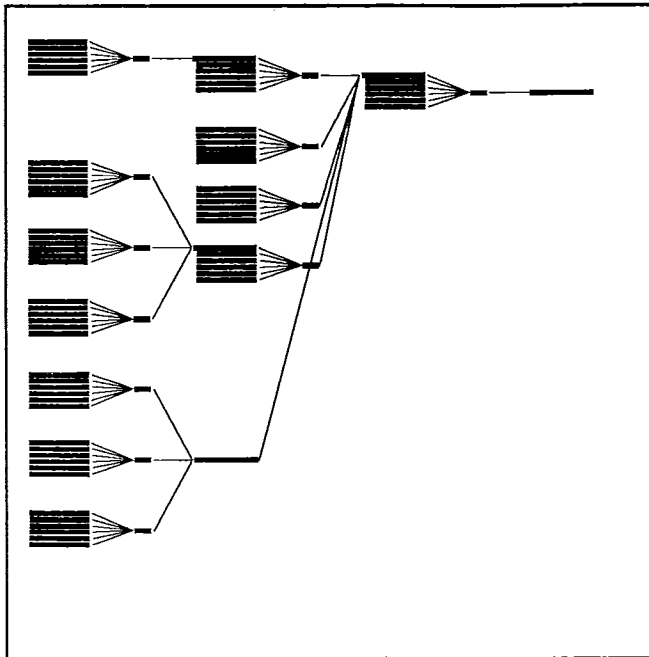
Rule example

If
The_Film.Last_Airing is Non_Existant
The_Film.speaking is English
The_Film.Release is Recent
The_Film.Actor is Famous
The_Film.TV_Channel is Major
Then **Audiance_Increased**
And
 (The_Film.Audience * Factor) is assigned to
The_Film.Audience

This quality is essential for an operational expert system used by non-computer trained executives and clients since it prevents the system to appear like a black box. Understanding how it works will be a key factor in seducing companies outside the computer world ; and this is where a new big market is....

Exploitation
The performances of the system are really astonishing : a 5 M$ TV campaign is designed in 4 to 8 minutes, compared to at least 3 full days for a human expert (and often much more...!).

Moreover, the result of the expert system is often significantly better (of course this opinion is valuable only because the human expert himself said so...!). Times is insensitive to fatigue or stress, and will instantaneously take any new data or constraint into account...

The ability to produce a quality TV planning in 5 minutes opens a wide field of interesting possibilities :
- sensibility analysis upon any data or constraint change : it becomes possible to design several campaigns with slightly different data, with the same quality and reliability...
- the flexibility of the campaign design therefore becomes unlimited : any change in the client's wishes can be considered and satisfied at once...
- this flexibility is mostly important during the screens buying procedure : new constraints often occur (availability, price list alteration, interesting events...) and must be solved in a very short time. No human expert is able to recast his planning taking into account any unexpected event, but Times can !

Times has been used since october 1988, with full success. The return on investment can already be considered as very high... Time saving is about 30% for the expert himself, but the benefit is still more important for commercial efficiency : Mediatop can easily prove the quality of the management of the client's TV account. Moreover, Times is a wonderful winning card for prospecting new customers...

Next Step
Intellia is presently negociating with a french major TV channel for implementing a specific times development.

Two modifications would then be quickly added to the system :
- a link between Times and the actual screens management system.
- a new tool (I.E. Nextra) for marketing and screens positionning.