UN GALA DI VENEZIA

A Gaming Simulation on the "expectations" of the Venitian inhabitants

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1. Rationale

This game falls into the category of analysis and participation techniques. As is well-known, gaming simulations are one of the tools available to **analyse** and **investigate** systems behaviours, mainly socio-economic ones.
There are, in fact, various methods for representing a system, as well as various possible interpretations. The **simplest model**, for instance, represents a system according to one or more cause-effect relations between its state variables; clearly, given the initial conditions and the system transformation laws, we can know the evolution of the system "in advance". This is a **deterministic prediction**, which is generally good for systems having a limited number of variables and a "regularity" of transformations.
The next step towards **complexity** brings us to represent systems according to several casual relations, or according to synchronic relation sheafs: the state A "causes" B when transformations 1,2,3 are associated with it.
These types of models allow us to represent the system relations by means of **structures** like **trees** or **nets**.
Known the structure, we can "reckon" the overall system evolution according to the behaviour of a few variables. This type of model is suitable to dynamic systems having neither points of "crisis", i.e. catastrophe points or singularities, nor unexpected events which may affect their "tendencies"; here again, we are dealing with **ideal** and rare occurences.
We need more sophisticated techniques to analyse unstable systems wherein small variables' changes give rise to relevant evolutions; in these cases, notably for systems organized into space, besides simulation techniques based on the **Catastrophe Theory** or **Chaotic Systems**, we have found it useful to adopt techniques based on **Cellular Automata**.
However, the model we have adopted to represent the socio-economic Venitian system is not only a "complex" one, but it is also based on subsystems wherein the participants' decisions and actions are relevant; consequently, it will be difficult to analyse its evolutions.
As is well-known, among the prediction techniques of systems wherein the social agents have "free play", one of the most useful, from a **heuristic** viewpoint (i.e. to make hypotheses on the system evolution), although not so "powerful" (as it does not formalize the whole system leaving out the part which depends on the decisions taken by the participants) is that of **gaming**

simulation, which may be defined as the ***simulation*** *of the effects of decisions taken through the assumption of* ***roles*** *based on* ***rules*** (notice that, for the **Theory of Games**, **game** means a set of rules). Our choice is more useful inasmuch as our simulation aims to **analyse** but also to design **participation** systems; that is why we have chosen techniques which favour the **representation** of social **behaviours** (decision making and strategies) more than the simple algorithmic **definition** of the system objective **parameters**.
An algorithmic definition is, however, present both in the relation matrix of the "social expectations" phase and in the evaluation of the decisions' effects.

2.AIMS

For these reasons, we have chosen to analyse the Venitian urban system according to the socio-economic and environmental "expectations" of its inhabitants, both in general and as regards possible urban intervention plans; that is, we have applied the simulation to the internal **physical**, **economic** and **social** subsystems on which the system is structured as well as to the general **frame** wherein the analysis of an urban system lies. It is a "real" world made of decision and consensus policies.
At first we have simulated the basic process structure (the "expectations" model which is the game's nucleus: we have called it **UN GALA**). From this, passing through the **METADEBRIEFING** (**META**), a "connector", the model for the decision phase (called **STRADE**) derives. The number of teams may be of about 70 (70 to 200 participants) in the **UN GALA** phase, 14 people in the **META'** phase and 7 teams (7 to 20 people) in **STRADE**.
In Italian **UN GALA** means reception, feast and is the anagram of **LAGUNA**, lagoon; **META'** means a half and **STRADE** stands for **STRATEGIE DECISIONALI**, that is, decision strategies.
STRADE is a frame-game suitable to simulate urban and environmental interventions, such as the plan to tranform the Venitian lagoon into a **lagoon park** or the hypothesis of creating an underwater train system to link the islands to the mainland.

3. UN GALA

UN GALA is based on the Venetian socio-economic system (insular area); as this is a "complex" system, so is the structure of the **roles** assigned to the **players**: the participants are, in fact, 70 and they simulate as many "social protagonists" of the Venitian life.
Their high number depends on the neecessity of having sufficient information to "portrait" the main levels of **social expectations** regarding possible **economic**, **environmental** and **life quality issues**.
The players are divided according to common interest and goal

areas into the following **groups**:

ENVIRONMENT
HOUSING
CULTURE
EVERYDAY LIFE
SERVICES
TOURISM

Each group contains a number of "social agents" which, in our game, stand for the players' roles: this choice depends on the social structure of the inhabitants and of the commuters working in Venice.

All the participants have the same aim, which is **to make the highest number of events occur** among those available in each group, namely the **personal events** (fig. 1 shows the list of groups and teams -fig. 1a- and an example of events -fig. 1b)

The most "skilful" players will be able to build the **consensus** of other players (belonging to the same group) around their personal strategy, and, thanks to their ability to **predict** the system dynamics, they will "maximize" their more cherished events. Evidently, this is a negotiation and prediction game which enables players to better **represent** their social position.

Thus the events (be they realized or not) affect the following system general variables:

economics
environment
quality of life

3.1 Procedure

3.1.0 Group formation

The players sit around 7 tables, each according to the group simulated. To each "group" the following materials are assigned:

1- the **game board**, a polygonal holder containing the **game cards and the event cards.**
2- **voting cards.**
3- a **die** to simulate random events.
4- a **monitoring board** to assess the impact of the events on the system, namely the **economic, environmental and the quality of life** variables, within each group.

Finally, there is a **general board** (similar but bigger than the

game board) which monitors the groups' global results.
The **game cards**, which equal the number of players, list all the events of each group and are accompanied by a movable device indicating the probability.

The **events cards** contain:
a) in front the group, the event number, the title, the description and the inital probability;
b) on the back arrows of various type indicating the effects (+ or - 10% of the current probability) of the event (whether it occurs or not, see 2.3) on all the other group events.
The facilitator explains the simulation aim, objectives and rules to the players.

3.1.1 Choice of events

Each participant chooses in turn to play an event card (to a maximum of 10 cards) so as to make the event occur or be eliminated.

3.1.2 Events put into play

The players, in turn, put an event into play, according to the following rules:

- **rule 1**: each objective must be played only once during a game.
- **rule 2**: each player must choose at least **4 events** to be **voted** (simulation of the **consensus** process) and no more than **3 events** to be **drawn randomly** (it simulates the **risk** undergone by the player who forecasts an unacceptable consensus level and accepts the "laws of chance").
- **rule 3**: at the beginning of each game, every event has an **initial probability**.
  The event **occurs** when it overcomes or equals 100%; it is **eliminated** when it is inferior to 10%.
  In the first case the other events' probabilities **change** accordingly and the variables are affected in conformity to the **relation matrix** implicit in the **game cards**; if the events is eliminated the changes and influences will be the opposite.

3.1.3 Voting

During this step each player has to submit the event chosen to the other participants'consensus of his/her group which will be expressed through the **voting cards**; each card is worth 5% or 10% according to the player's social or economic relevance; a vote in favour increases the probabily, one against decreases it.

During this phase the following rules apply:

-**rule 1**: the new probability is obtained by summing the initial probality and the voting power of the other players
-**rule 2**: if the events **does not occur or is not eliminated, it stays in game** with the probability obtained during the voting session.

3.1.4 Random occurence

Choosing this options we can submit the events whose probability is over 50% to the "risk" of casting a die: if the values **1,3,5** occur the event is **not realized** and its probability will diminish of 10%, otherwise the events is considered as **realized**.
During this phase the following rules apply:

-**rule 1**: as mentioned above, each player may "risk" no more than 3 events per game.
-**rule 2**: it is possible to play **only events** having a probability over **50%**.

3.1.5 Revision of game cards

When an event **occurs** or **is eliminated**, the game cards change the probability of all the events "linked" to it (obviously, within the same group) and the **monitoring board** is adjourned, according to what the back of the cards indicate.

3.1.6 Final revision

Once the events run out, the **game cards** are adjourned according to this device:
each probability indicator is moved to its nearest end: it will be eliminated if its probability ranges between 10% and 50%, it will occur (100%) if it is superior to 50%.

3.1.7 Election of the 7 leaders

Each group will elect its leader, i.e. the player with the highest number of votes. To be **candidate** a player has to have 70% of his/her "personal" events realized.
The ballot is secret; at a parity of votes the candidate having realized the highest number of "personal" events is elected, if there is still parity, the leader is chosen by lot.
If nobody has realized 70% of events, each player can apply for election regardless of the **quorum** limit.

3.1.8 Final Debriefing

The facilitator hands each leader the various game cards and the monitoring board and explains the aim of the other simulation phases.
Finally, each leader opens the debate on:

- the analogies between the "real" system of social expectations and the process which during the game has led to the elimination or realization of the group events.
- the possible attitude of the group regarding the intervention.

4.META'

It may be defined as a **meta-debriefing** connecting the participation to the decision phase. It consists of a meeting between the leaders and a group of experts.
After having updated the **general monitoring baord** according to the results of the group choices of the economic, environmental and quality of life variables, each leader reports exhaustively on the group game development.
At the same time the **common expectations** and **conflicts** arisen about the suggested intervention will be examined. The experts will assess the **results** of the debate so as to indicate the **objectives** to be played in the following phase.

5. STRADE

Now we shall deal with the third phase of our simulation, namely with **decision strategy** (**STRADE**). On the one hand we shall analyse the impact of an intervention on the Venitian socio-economic system (as said above, we have started from two, i.e. the hypothesis of transforming all the lagoon into a park and of creating an underwater translagoon train system); on the other, the steps necessary to make them possible, possible meaning here **technically feasible, socially desirable and institutionally realizable.**
Considering the hypothesis of the lagoon park (**PLAG**), firstly, it will be necessary to fix the assessment tools of the immediate **effects** ar regards the following issues:
economic issse - direct and indirect costs of the intervention (consider the problems of industrial and rural rubbish), running costs; induced effects like employment, tourist flows, housing renewal, area improvement, etc..
socio-political issue - provisional enactments, social power relationships, political positions.
physical-enivronmental issues - technical characteristics and range of the intervention, geophysical and weather issues, ecosystem changes, etc..
These elements allow us to design a number of **PLAG plans**, divided into economic, socio-political and environmental "packages",

that is, a game structure wherein the simulation of the intervention might be played.

The **protagonists** of the decision simulation could be grouped into the following **roles**:
a) **Traditional and tourist economic operators.**
b) **Innovative economic operators.**
Both roles aim to maximalize their own profits without extreme reciprocal losses as well as a general as high as possible profit. These are functional roles which develop throughout the simulation.
They act mainly in the **economic** subsystem.

c) **Local Authorities.**
They are the representatives of local councils and will be responsible for the decision and implementation of the plans. Thus, their power varies according to the team components.
They take part in the debate about the plans, intermediate among the players, have a certain influence on the **contract allocators**, acting mainly in the **economic and environmental** subsystems and have to submit to a **consesus** assessment. This role is assigned.

d) **Environmentalists.**
Ecologic associations and movements, intellectuals and urban planners exerting a pressure and a control on the other teams, trying also to influence the **Scientific Committee** and **Public Opinion.**
They act in the **environmental and consensus** subsystems. The role is functional.

e) **Polluted People.**
They stand for the protagonists of the residential social dynamics who try to obtain a good quality of life and environment.
They act in the **environmental and consensus** subsystems. The role is functional.

f) **Contract allocators.**
They try to influence the other teams and public opinion as regards the intervention feasibility; within them there are:

f1) **The Scientific Committee,**
which acts as a link between the contract allocators and the others, defends and promotes the plan, trying to protect somehow its scientific dependance.

g) **Planners and executors.**
They are the final decisiomakers and responsible of the plan implementation. At the beginning and during the game they present

the intervention "packages".

There are other two **pseudoroles**, which do not directly intervene in the dicision making, but may bear upon it:

h) **Public Opinion**, made of the seven **leaders** of the first phase.
i) **Hidden Powers**, modelled by a number of unforeseen events, occurring randomly.

fig. 1a **List of teams**

TOURISM
1 Unauthorized boat-taxi drivers, 2 Boat-taxi drivers,
3 Gondoliers, 4 Stand holders and pedlars, 5 Craftsmen,
6 Shopkeepers, 7 Small hotel and boarding house owners,
8 Restaurant owners, 9 Bar and self-service restaurant owners,
10 Luxurious hotel owners, 11 Mainland hotel owners,
12 Conference and cultural tourism operators, 13 Tourist operators.

EVERYDAY LIFE
1 Car owners, 2 Retailers, 3 Snack-bar and restaurant owners,
4 Local wine bars, 5 Mothers, 6 Working women, 7 Old people,
8 Young people, 9 Consumers, 10 Boat owners.

SERVICES
1 Drop-outs and handicapped people, 2 Health and social-care workers,
3 Chronic invalids and senior citizen, 4 Women, 5 Islanders,
6 Public transport workers, 7 Commuters (work and study),
8 Educational service employed, 9 Educational services users,
10 Immigrates, 11 Civil servants, 12 Public administration users,
13 Local authorities, 14 Voluntary social-care associations,
15 Public transport agenecy, 16 Occasional transport users,
17 Local health authority.

HOUSING
1 Estate agencies, 2 Small householders, 3 Public housing sector,
4 Large estate owners, 5 Controlled rent tenants, 6 Owner occupiers,
7 Evicted people, 8 Market rent tenants, 9 Tenant associations,
10 Building companies, 11 Public housing tenants.

JOBS
1 Craftsmen, 2 Traditional sectors employed, 3 Hi-tec employed,
4 Tourist enterprisers, 5 Non tourist enterprisers,
6 Seasonal and occasional workers, 7 Trade unions, 8 Unemployed,
9 Researchers and technicians, 10 Professionals.

CULTURE
1 Students, 2 University researchers and professors,
3 Teachers, 4 Intellectuals and artists, 5 Cultural associations,
6 Theatre subscribers, 7 Occasional theatre goers,
8 Cultural events organizers.

ENVIRONMENT
1 Environmental associations, 2 Single issue associations,
3 Sporting assocciations, 4 Polluted people, 5 Rural polluters,
6 Industrial polluters, 7 Tourist polluters, 8 Health controllers,
9 Garbage removal agency.

Fig. 1b **Example of a team's objectives**

ENVIRONMENTAL ASSOCIATIONS - TEAM 1

Objectives:

A1 - lagoon flora and fauna protection
A2 - historical, artistic and architectural works of art preservation
A3 - tourist flow control
A4 - non admittance to the translagoon bridge for non residents
A5 - non admittance to the translagoon bridge for tourist coaches
A6 - renewal and increase of public transports
A7 - limitation in chemical fertilizers and pesticides
A8 - grants to non polluting agriculture
A9 - grants to traditional lagoon fish breeding
A10 - canal excavations
A11 - water depuration sewage system (private pollution)
A12 - water depuration sewage system (industrial pollution)
A13 - lagoon fish hatchery renewal
A14 - reclaimed land flooding
A15 - creation of a lagoon park
A16 - tax on polluters and polluting substances
A17 - interventions against cultural pollution
A18 - swell control