Multimedia System Synchronization in Large Scale Auditoriums by Flexible Principles and Applications & the Analysis of a Sample from Istanbul, Turkey.

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Abstract: -Multimedia is an effective tool for the presentation quality and the created atmosphere in the whole structure of an auditorium by various ways supplied by technical data and input. The virtual interior impression is the high-tech renovations of the real with the newly invented and contemporary appliance hardware. The auditoriums that are concerned in this study are flexible spaces with variable design allocation cumulated around the same basis performing a system which should be synchronized to be a fascinating and optimized production planning. The planning issue is the basic point of this interactive design. The synchronized systematic work is the reflection of the success of the team work at the end. This processes maintained by computational intelligence is the basic point of this study. In this work the advantages and disadvantages of the computational intelligence in auditorium stage organization and the analysis of a sample from Turkey, Istanbul, the flexible auditorium of the 'Lütfü Kırdar Congress and Conventional Center' is being identified.

Key Words: -System synchronization, flexible, computational intelligence, auditorium, multimedia.

1 Introduction

Large scale auditoriums are places characterized by multidimensional properties concerning performance activities capturing audience and the viewers. The fourth dimension is the affection of time in interior space [7]. The interior organization is consisting from stage, circulation areas, audience seating and control rooms for the whole. The interior organization is something based on the multimedia affection as virtual system capturing the whole atmosphere. The whole system is a multicentric planning schedule concerning the one whole activity. This process is cumulated around the optimal system synchronization produced by technical integration based on man-machine systems.

The feature of this system is the common property of the computational intelligence as a basis and creator of the live happening performance by the help of the intelligent databases and information facilities.

Even without computer generated mechanisms, temporally patterned synchronization of communicative patterns activity is involved in technical development and information processing. Generation of spontaneous synchronization is thought to arise as an alternating sequence between states of synchronization followed by a period of programming issue associated computational intelligence. However, the control panels controlling the stage and timing of synchronized events have remained difficult to specify, although the specific temporal pattern of final optimization determines its impact on developmental processes.

2 Multimedia System Synchronization in Auditoriums

When computers are networked together to share information and organize the whole structure of the activity, it is important they have a common time, space and systematic reference. Networked file systems, centralized compilers, license servers, and real-time control systems all need to be synchronized to some degree, and what differentiates a real-time control system from a license server is the degree of accuracy needed. The license server could be synchronized within a few minutes. Changes to one media can change the duration of that segment of the presentation and so affect the synchronization between the system operations. The synchronization of different media is critical to such a system and must be modeled in a way that allows for viewer interaction. The flexible presentation system, provide a model for the synchronization of different data streams to allow for changes both at the time of creation and at the time of presentation, identify directional dependencies in synchronization specifications.

Designs often require synchronization of different power converters within the same piece of equipment [14].

Architectural design requires some concept of the relationships between systems and subsystems and of communication topologies [15]. Additionally, for real-time distributed software development, there are many more issues to be addressed at the model level, such as
-Event-driven and time-driven constraints.
-Dynamic process issues such as concurrency, nondeterministic behavior and also communication, synchronization, and state dependence,
-Fault recovery and dynamic system reconfiguration,
-Target implementation issues such as performance, timeliness, memory constraints, and seamless integration of target debug tools,
-Distribution of processing resources,
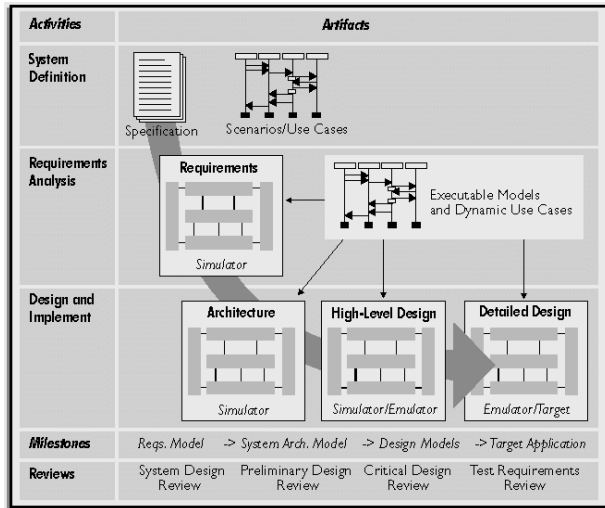-Flawed and evolving system requirements.

Figure 1 Functional activities and deliverables.

A paradigm shift is required to make dramatic productivity and quality improvements. The auditoriums donated with high capability maturity model proposed by man-machine systems are better able to achieve success quickly [15]. Following are some key benefits to consider:
-Software development time is improved by a factor of two to six times over conventional methods when total application code generation from the model is used. The model becomes the implementation.
-With an efficient virtual machine implementation, developers are able to reuse some technical components within frameworks and across a variety of platforms and applications.
-Hierarchical architectures and designs can be explored quickly for suitability with dynamic use cases.

Frameworks allow legacy code to be included at the correct behavioral and architectural locations in the design model.
-Issues such as fault tolerance, messaging protocols, behavior, and concurrency can all be investigated prior to implementation.
-The graphical interface is easy to understand and maintain compared to traditional approaches. New staff could become more productive.
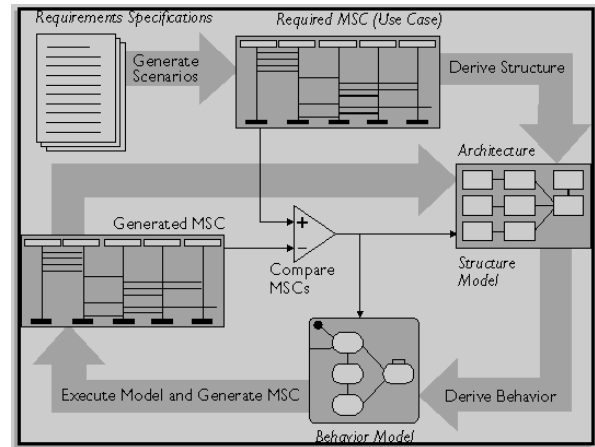

Figure 2 Scenario developments.

3   Variable and Flexible Systems

The variable and flexible properties of the interior organization of an audience depends on the;
-Architectural spatial form,
-The flexible and modular donations and elements used for audience setting and stage design,
-The multimedia affection integrated with spatial meanings,
-The quality and the affection of computational intelligence regarding the organization of the whole function as a performance or any activity etc.

The basic quantity of the variable principles is the systematic synchronization cumulating with the basis of time, space, the performance, the integration of the audience and the stage, the virtual atmosphere covering the whole activity, the optimization process etc.

The feature of the flexibility parallel with the aesthetical value and virtual atmosphere desired is the aim of the systematically synchronized activity capturing the intellectually conjuncted computational database.

## 4   The Analysis of the Samples from Different Countries

When we overlook the general appliances that could be seen in different large scale auditoriums we can see

some similarities and differences of the man-machine systems adapted to interior with computational intelligence. Some examples are:

1-*Thompson Theater* is a 250-seat flexible space, which can be used as a theater, recital hall, or cinema [11]. This makes the multidimensional usage quantity of the auditorium. The theater is equipped with removable risers that can be placed between the fixed seating and the stage to create a "flat floor" setting, or removed to create an orchestra or seating pit for a proscenium-style theater. An adjustable "false proscenium" and the use of sixteen lines of double purchase counterweight line sets are additional elements which adjust to create this setting. In order to adapt the acoustics of the room for various performance needs, the theater has acoustic curtains, which can be extended over the walls to absorb some of the reverberant energy. This change supports the needs of speech and amplified events (**Picture 1,2**).
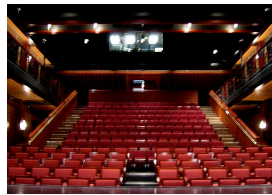
Picture 1 The Stage   **Picture 2** The Audience Seating

2-The *Tuen Mun Town Hall* Auditorium, versatile for different types of performances and with a seating capacity of 1372 audiences, is the pride of the Town Hall [16]. It has a stage area of 323 m² measuring 19 meters in width, 17 meters in depth and 9.9 meters in height.

Picture 3 The General View from the Stage

With the two wings each offering an area of approximately 300 m², the stage layout is convertible and can effectively cater for different production requirements.

Other main features include adjustable sound enclosures to fit orchestras of different sizes. For proscenium performances, the stage is equipped with a flying system for the putting up of scene curtains, sufficient for large scale production. The first two rows of seats in the seating area may be removed for easy conversion into an orchestral pit. The backstage area is equipped with six single and seven communal dressing rooms, an advanced computerized lighting system complete with 120 circuits and a sophisticated sound system with a 24-channel mixer (**Picture 3, 4, 5**).
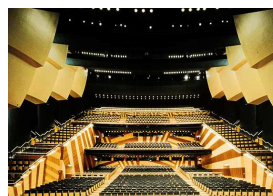

Picture 4 The Audience Seating   **Picture 5** The Multimedia Stage
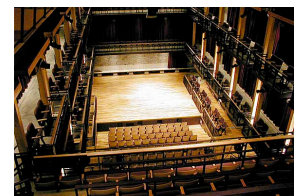
3-Another sample is the *Festival Performance Hall*. The 480-seat Festival Performance Hall [11] has a striking interior of rough-hewn, locally quarried stone beneath a cross-beamed roof of Northern Ontario pine. The hall's flexible seating systems can be adjusted to accommodate all types of different performances (**Picture 6, 7, 8, 9**).

The stage of the audience has different focal points from the audience seating. As the elevated seating is organized to perceive the stage from different point of views then the image of the stage would change as the synchronization indicates.
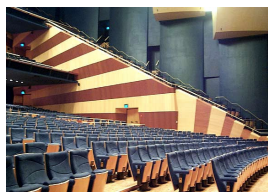
In basic stage design to reach the optimal quantity the similar quantities of perception from different placements regarding the scene should be organized during the designing process [5].
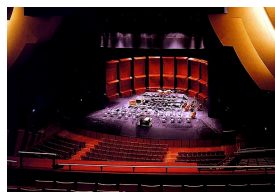

Picture 6 The Audience Seating   **Picture 7** The Stage

Picture 8 The View from Audience Seating

Picture 9 The Stage with Multimedia Facilities

When we analyze the similarities of these samples as flexibility and synchronization theories:

-All the auditoriums have two different images. These images depend on the crowded capacity of the space. The first image is the impression we can get as the interior is empty and only with the principles regarding the space and the real effect of the decoration. The second image is the visual value created by the live happening activity in these spaces concerning multimedia facilities based on computational intelligence which is synchronized in a systematic understanding qualified with man-machine systems. The image is then formed as a virtual reality which is much more different then the image when the auditorium is not in use. So the technical allocation gives the space a different visual value and aesthetical reflections.

-In all the auditoriums the flexibility property is supplied by the variability of the set design organization whether with multimedia facilities or decorative quantities.

The differences of these auditoriums are:

-The shape of the stage is different as proscenium and arena shape. So the integration of the stage and the auditorium changes accordingly with the shape while the arena (**Picture 7**) is a closer relation of the stage from the proscenium (**Picture 1,4**).

-The functional requirements of the spaces may differ so the flexibility quantity changes. In Festival Performance Hall stage (**Picture 9**), the multimedia synchronization is much more effective then the stage of Thompson Theatre (**Picture 1**).

5   The Analysis of the Sample from Turkey Regarding System Synchronization as Flexible Systems

In this work when we examine the sample of high-tech performance areas having flexible functions and usage ability then *The Istanbul Convention & Exhibition Centre (ICEC)* could be taken into consideration as it has a function to organize congresses and exhibitions, performances in Istanbul [9]. The auditorium of the center is the largest auditorium facility in Turkey with its multidimensional interior organization and high-tech computational intelligence adapted in stage designing and orienting.

The stage has different impressions when it is in use with some live performance activity or some different functional requirements. When it is during the activity the atmosphere created captures a virtual ambience and space cumulated around the computational intelligence with the integration of man-machine systems. The synchronization of the scenic requirements is the artificial usage of the technical output with a systematic process. (**Picture 10**)

The Auditorium has a capacity of 2,000 people seating. The *ICEC Complex* was also designed to be multidimensional as the speedy usage of the space also to reach the sustainable meaning.

Picture 10 The Basement Floor of the main auditorium of *Lütfü Kırdar Congress and Conventional Center (ICEC).*

The sustainability of the auditorium indicates the full capacity of the usage of the space all the time with functional requirements. The efficiency supplied by less effort of human-interaction but more with computational programming ability is the reason of the newly invented technological developments in auditorium facilities.

In the **Pictures 11,12,13,14** the different functional usages of the interior based on multimedia affection could be seen [9]. The variable flexible usage of the interior is supplied by:

-The systematically synchronized performance abilities reflecting the image of virtual reality,

-The multimedia concerning computational intelligence as the whole system is controlled and directed by technical data which is processing continuously as the performance goes on and on. The maintenance of the programming issue is a coordinating facility before the show starts. The computational coordination is being prepared before all types of functionalities.

-The cyclorama and back stage is the most flexible property of the stage as it changes all the atmosphere of the virtual image of the interior

Picture 11 The View from the stage whit a musical performance activity.

Picture 12 The stage with multimedia facilities having a function of presentation during the performance.

Picture 13 The Stage with the function of a contest.

In **Picture 13** the virtual atmosphere is created by a system synchronization based on color and lighting on the stage also added with music. The synthesis of the desired stage is the product of a whole technical data.

In **Picture 14** the stage is fully affected under the great reflection of the presenter. This forms the whole stage without any donations and scenic elements. The reflection time on the screen, the acoustics, the lighting and the color is all synchronized to be as one. And the timing property of each of them follows the other as the continuity arises. This feature makes the system synchronized. The continuous programming ability is the basic point of the systematization of the whole system.

Picture 14 The Stage with presentation facility.

In this sample with different functional requirements it is analyzed that the flexible quantity of the auditorium comes from the interaction of multimedia facilities. It could be determined that multimedia is analytical data as numerical and computational adaptations then automatically the system is being synchronized as one [7].

6   Results and Conclusions

In this work the results could be identified as:

-Multimedia is a tool to maintain the systematic synchronization of the stage design of the auditoriums having the capacity to interact the interior with the computational hardware with timing processes in good sequence [7].

-The flexibility of the auditorium interior depends not only the flexibility of the set design decoration or seating capacity but also the variability of the stage by visual means as the changing durations of the color, lighting, the cyclorama, the effects concerning background etc. in conjunction with each other.

-The synchronization is the sustainable meaning of any auditorium interior as it is a high-tech reflection of the newly invented with systematic point of view and organization. The contemporary value of the product is the success of the optimal programming ability of the computers dedicated to act as one.

The **disadvantage** of systematically synchronized programming ability of computational hardware is:

-As the systematic synchronized system is all supplied by computational intelligence, the tolerance of faults or any timing variability could depress the optimal quantity of the technical synthesis. The man-machine systems are practical and effective when compared with conventional methods but there could be a risk factor to destroy the feature of the all body if any type of delay in the synchronization occurs.

-As the system depends on computers, the faults could be hard to be repaired as all the system is tied to each other one by one continuously.

The **advantages** of systematically synchronized programming ability of computational hardware are:

-The easiest and fastest way to organize any type of the live event or performance with less effort and time,

-To reach the quantity of systematical integration with computational interaction which is reliable and optimal?

-Increasing the human effort in large scale organizations and at the same time increasing the usage of computers and the capacity of them.

-The opportunity of the flexibility of the stage at a very short time by virtual means,

-The multidimensional usage feature of the interior with all sides so increasing the usage ability of the interior etc.

As a conclusion it is identified that auditorium interiors are the places characterized by physical dimension, image and computational intelligence cumulated around the aim to maintain any type of performance or activity whether by virtual or real means.

The success of the whole structure depends on the organization of systematical synchronization of the computer generated fixtures. The basic point is that it should not be forgotten that when these are used, the delays and any type of faults should be compensated by human interaction. So these types of performances are high-tech and easy to use but always should be controlled and carefully observed. The appliance of the computer generated systems in design performance is both a flexible and contemporary usage and also carry the quantities of optimally synchronized system adapted to performance organization but on the other hand depends mostly on the concept of timing criteria so because of not to destroy the quality of the continuity of system synchronization, great attention to timing in all the steps should be given.

It could be analyzed that in large scale interiors and functions it is no more a sustainable meaning to organize the whole with human interaction. The recent developments in technology and computer generated systems are really a great opportunity in reaching optimal solutions.

The contemporary and newly invented technologies indicate that in the future the man-machine systems will be adapted to ordinary life more than today as the advantages of the computational intelligence is much more than any type of manually organized system. The basic point is; against the hardness of the planning issues in large scale performances when once the optimal quantities are created then it could also adapted with different appliances with small changes. Then in different usages and functions the planning process will

not be solved again from the starting but with an optimized model from the previous or another show which will be the starting point of the concept of the new performance's theme.

It should be a starting point for contemporary designers to achieve the practical advantages of the computational intelligence in design process without ignoring the importance of timing criteria. The designing principles regarding the real interior are not as much important as the optimal synchronization of the system creating the virtual.

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