Data and Application Management Models for Content Services Architecture: example of project approach to education process of master students in IT

Authors: Victoria Turygina, Alexander Tarasyev, Sergey Sorokotyaga, Alena Iskra and Anastasia Timofeeva

Speaker: Anastasia Timofeeva
• The purpose of the research: to develop a simulation model for data and application management in the architecture of content services that will help to analyze and structure the functioning of companies in the growing market of online advertising.

• Object of the research: Russian e-sports agency «M19». E-sports competition - the main product of the organization «M19». Different companies and organizations who wants to get higher brand awareness at the end of the competition can be a customer. Agency uses streamers as the general channel of ad promotion.
The hierarchical structure of organizational processes of the company
View of the model made in Powersim Studio 7.0
Level equations

- **Economic result**
  \[ Ec_{res}(t) = Ec_{res}(t_0) + \int_{t_0}^{t} (Tm(\tau) - Tcs(\tau)) d\tau \]
  - \( Ec_{res}(t) \) – economic result at a time \( t \); 
  - \( t_0 \) – starting moment of modeling; 
  - \( t_l \) – final moment of modeling; 
  - \( Tm(\tau) \) – the rate of cash inflow received from the company at a time; 
  - \( Tcs(\tau) \) – the pace that characterizes amount of expenses at a time. In this case, gross costs including taxation.

- **Client base**
  \[ Cr_{bas}(t) = Cs_{bas}(t_0) + \int_{t_0}^{t} (Tatt\_cs(\tau) + Tatt\_cs\_p(\tau_n)) \]
  - \( Cr_{bas}(t) \) – number of clients at a time \( t \), \( t = t_0..t_l \); 
  - \( t_0 \) – starting moment of modeling; 
  - \( t_l \) – final moment of modeling; 
  - \( Tatt\_cs(\tau) \) – the rate of the standard inflow of customers into the customer base at a time \( \tau \); 
  - \( Tatt\_cs\_p(\tau_n) \) – the rate of the additional inflow of customers into the customer base after implementation of additional services and actions at a time \( \tau_n \).
## Basic value of levels

<table>
<thead>
<tr>
<th>№</th>
<th>Name</th>
<th>Value</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Economic result</td>
<td>0</td>
<td>RUB</td>
<td>The economic result of the organization, taking into account the deduction of gross costs and taxation</td>
</tr>
<tr>
<td>2</td>
<td>Client base</td>
<td>35</td>
<td>people</td>
<td>A drive with the number of contacts, some of which making an order for a service; according to the conditions of the model, modeling starts from 50 contacts</td>
</tr>
</tbody>
</table>

## Model’s «Implementation» switch
Comparison of economic results without the implementation of additional services and activities
Comparison of economic results with the implementation of additional services and activities
Conclusion

Using the software product Powersim Studio 7.0 a system-dynamic model of electronic sales management was developed and tested using the example of an agency that organizes e-sports competitions. The presented model allows managing data in the architecture of the agency’s content service with the help of a regulator for turning on and off additional services that makes it possible to research deeply and in more detail the effect of implementation on the economic result of the agency.
Thanks for the attention