MODEL REVIEW

The model was developed with the modeling and simulation software **"ithink 7.0 ®"** but, since we only have a Demo version ("save disabled"), we had to save our work on **"ithink 4.0"**. Version 7.0 offers some very helpful and necessary tools for our work and that is why we decided not to run the simulations on ithink 4.0 (note, however, that the model is completely accessible from version 7.0). Because of this reason, once you open the model in ithink 7.0, some little changes are required in order to run it:

- Select the stock *"Service Center"* and open its dialog box by double clicking on it; then select *"Conveyor"* and tick the box called *"Discrete"*. Then click "OK".
- The flow *"Getting Rework"* has now become a leakage flow; select it and open its dialog box by double clicking on it; here, tick the box called *"Integers Only"* on the top, then click "OK".
- Select the stock *"Working Agents"* on the left bottom of the model and open its dialog box; select *"Conveyor"* and tick the box called *"Discrete"* then click "OK".

Moreover, note that in the diagram some of the model elements and variables are colored differently; in order to run the simulation with the desired data, one ought to change the values contained inside of them and insert desired ones; the green elements represents the Leverage Factors of the model (that is, the factors you may want to change in order to appreciate the different behaviors of the system), while the black ones represent constant values, which are typical of the environment under study. Now let's show what each object represents and which value they should be assigned:

- *"Calls in time unit"* is an exogenous variable strictly correlated with *"Seconds in time unit"* and shows the forecasted number of calls arriving in a time window expressed by the second element (e.g.: if your Call Center Forecasting Staff forecasted a level of traffic of 250 calls per half hour (1800 seconds), simply insert 250 in *"Calls in time unit"* and 1800 in *"Seconds in time unit"*.
- *"Trunk Dimension"* is a constant defining the maximum number of calls storable in each Trunk, while *"Number of Trunks"* defines the number of trunks of the system (e.g.: if you have 10 Trunks, each having 6 slots, you should assign 6 to Trunk Dimension and 10 to Number of Trunks. The product will represent the system's capacity.).
- *"Staff"* is an exogenous variable containing the number of agents you have scheduled (e.g.: if you have 34 agents working, then insert 34 in this element).
- *"ATT"* is the value of the Average Talk Time spent by Agents in answering to customers (the results provided in the paper have been obtained with a value of *180 s*).
- *"ACW"* is the value of the Average Time spent in After call Work by the agents (Wrap up time): the results provided in the paper have been obtained with a value of *30 s*
- *"Critical Occupancy"* defines the threshold level of Occupancy (usually set up at 0.88) after which a burnout effects on agents result (because of stress accumulation).
- *"SL objective"* defines the value of the Service Level objective that the CC Manager may wish to reach/maintain; it is expressed in seconds (e.g.: if the service level objective of your Call Center is 80% of calls answered in 20 seconds, you have to insert the number 20 in this converter).
- *"Quality Effort"* defines an exogenous variable which represents the overall level of quality you may want to ensure to customers: it sums up several quality key factors (described in the paper). The value provided must be a number contained between 0 and 1 according to the percentage of assessed quality, relatively to a perfect quality situation.

Once you provided all the mentioned values the model is ready to be run.