

1				
Role Schema		Airline		
Description		Represents the environment in which exist various events, requeriments and information of the workforce also the company's needs to have to satisfied		
Protocols		Report the best objective function (welfare function and unsatisfied demand function) and indicators (parts of each FO)		
Activities		Initialize data base, information of each service client agent (Skills, localization) Demand of the week		
		Establish soft and hard restrictions to be complying to the bussines rules		
		Represent of the environment in which the agents interact		
		Show the results of the agents who carry out their respective roles		
		Allow the data changes and generates un expected events to show the system behaviors		
Permissions		Generate	//	Enviroments , situations, Entry data
		Selection	//	The best solutions (as minimize the fuction objective)
		Change	//	Environment, situations
Responsabilities	Liveness	<ul style="list-style-type: none"> •Reception of request of the supervision agents of Scheduling and transport • Generate transversality between supervision agents of Scheduling y Transport • Communication of solutions 		
	Safety	<ul style="list-style-type: none"> •Feeding pause of 1 hour, The agent does not serve demand. • Maximum programming 75 agents • Minimum programming 30 agents 		

2				
Role Schema		Supervisor RRHH		
Description		It is responsible to satifsate the requeriments of the company and the welfare of the agents SC, from the clusters making by the SC agents, it assigns the activities by strip and reports the results obtained. It is in charge of assigning leaders per day according to observed demand peaks		
Protocols		Report indicators of the human resourses (Demand attended, free days)		
		Report pontential leaders		
		Receive agent groups		
Activities		Generate the best distribution of the activities per time of the reported agents in the clusters from of the supervisor of transport. The main idea of this distribution is use the heuristic, seeking minimize the fuction objctive of RRHH. Report those groups who need to be trasportated to the supervisor of transport.		
		Analyze indicators of RRHH, Acording to the preset ponderation by the company using results of the clusters and distributing agents in the differents schedules of the day to make a evaluation of the fuction objctive of clusters, likewise, of the department		
		Send indicators of the transport supervisor		
		Generate a list of the potential leaders, this list is created acording peaks in demand of the day with the habilities of the customer service agents available to work. This list is sent to the transport supervisor		
		Follow	//	Demand stage
Permissions		Notificate	//	RRHH indicators
		Sugest	//	Potential leaders in customer service
Responsabilities	Liveness	<ul style="list-style-type: none"> •Minimum one activity and maximum four activities must be assigned • Per phase one activity •To have demand data base •To have parameters of the gentic algorithm •request combinatory to service agents •Calculate the objctive fuction •Generate crosses and genome mutations • Report Results to Airline Agent 		
	Safety	Activities can be performed according to the skill of customer service agents • Call customer service agents • Recognize skills and activities		

3				
Role Schema		Transport Supervisor		
Description		Evaluate transport indicators, Report evaluations results of the clusters making by the SC agents		
Protocols		Report indicators of RRHH (Demand attended, free days)		
		Report objctive fuction (Demand not attended and the wellness of the agents)		
		Receives potencial leaders		
		Report clusters of RRHH		
		Report cluster's evaluations		
		Report clusters		
		Assing leaders per day		
Activities		Generate leaders. This activity consist in the use of a list of the potential leaders of the customes service seeking characteristics of the agents cohesion with potential partners available during the day, using a centroid methodology with the leader being the center of possible clusters		
		Unloock clusters. By implementing a heuristic or metaheuristic, generate a small change in the size (centroid) of the clusters to allow more or less solutions generated by the agents.		
		Evaluate the objective transport function. Based on the weighting of priorities previously established by the company, perform the necessary calculations to evaluate the objective function of its department		
Permissions		Follow	//	Monitor that agents can find new solutions
		Notificate	//	Appointment of leader notification
		Sugest	//	Potential exists if exists any blockade
Responsabilities	Liveness	<ul style="list-style-type: none"> •Vehicle assignation period from 9 pm to 6:30 pm • Do not penalize the vehicle rate 1.83 people / vehicle " 		
	Safety	<ul style="list-style-type: none"> • Same kind of trayects • Maximum 4 agents per vehicle 		

4			
Role Schema		Customer Service Agent	
Descripción		Customer service staff at the airport that make up clusters according to proximity and heterogeneity of activities	
Protocols		Recive results of the clusters that has been realized	
		Report group that has been realized	
		Reserve agent for a cluster (if it is a leader)	
		Send invitation to cluster (if it it a leader)	
		Reserve some agent to any change of activity	
		Send invitation for an activity change	
		Accept invitation to change activity	
		Accept invitation to join a cluster	
Activities		Generate invitations to potential partners. The agent acting as leader sends invitations to those closest to her (up to the maximum centroid) to be part of her cluster	
		Accept invitation. From the internal rules that the agent has (respecting the liveness and safety restrictions), evaluate whether or not it is feasible to belong to said cluster. However, in case of receiving the invitation of two or more clusters, evaluate the leadership level of said leader, if in any case the leadership (number) is the same, choose it randomly. IMPORTANT: AN AGENT CANNOT BELONG TO MORE THAN ONE CLUSTER	
		Request a change of activity. From the rules that the agent has, assess whether it is worthwhile to continue in this activity or not. It could happen because it is in break time, because there were problems with another agent or there was a spike in the demand and it is better to meet that demand. This invitation is sent to the agents who share with him a shift in said time slot	
		Develop capacities. The Customer Service Agent can inform their supervisors that they may now be doing more activities because they have developed their skills that allow them to receive more activities. This can facilitate the probability of being a leader and belonging to more clusters	
		Report a calamity of their partners. The Customer Service Agent informs his partners that it is not possible to continue attending the demand due to a problem presented throughout his schedule.	
		Learn from the cluster report made. The Customer Service Agent from the clusters that he made and the report of the same learns which type of clusters is more beneficial to him and which ones he should not take, since it is not useful to any supervisor	
		Create clusters. From the accepted invitations, the leader Customer Service Agent evaluates who to do their best Objective Function (cohesion of closeness and heterogeneity of skills) in case of matching several agents, it is best to choose those that have not been recently chosen and if in this case there is also a tie, choose them randomly	
Permissions		Notificate	// Calamity of partners, Clusters were created
		Solicit	// Support, Belong to a clusters
		Generate	// Clusters,Aditonal Capacities, Invitation for a clusters
		Change	// Activities in a hour frame
Responsabilities	Liveness	<ul style="list-style-type: none"> • Comply with the 48 working hours •Generate combinatorial 	
	Safety	<ul style="list-style-type: none"> • Lay down minimum 12 hours per day • 24 hours between the end of the turn (previously at the free day) and the start of the next day later the free day • Have at least one free day of rest in the week 	