

Distributed Scheduling to Support a Call Centre: a Co-operative Multi-Agent Approach

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Goal of the bank

- improve position on the market
- more efficient and effective use of resources
- binding potential clients to the bank



Call Centre

- offer 24 hour service
- transparently connected to local bank
- immediate handling of simple requests (70 % of the calls)
- immediately make an appointment (at earliest possible time) with local bank for more difficult requests (30 % of the calls)
- support autonomy of local banks (the agenda of client advisors of the local banks are not directly available to the call center)



The requests and questions of clients

- simple questions that can be answered directly
 - § e.g., current interest rates
- simple questions that do not require any further contact with the client but require further processing
 - § e.g., a request for new cheques
- complex questions and requests which need the attention of a client advisor
 - § e.g., an inquiry about a mortgage



Envisioned Procedure

1. a client calls the local bank; the call is redirected to the call centre
2. simple request → the operator deals with it right away
3. more complex request → the call centre contacts the local bank
4. if possible, the local bank suggests a number of possible appointments with the client
5. the client chooses one of these appointments



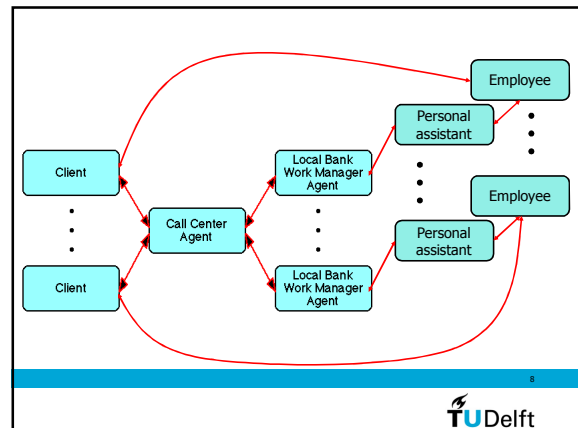
Additional Requirements: Agenda Management

1. employee fully responsible for own agenda
2. employee can refuse or change appointments
3. changes in the agenda should respect:
 - § the employee's activity preferences
 - § the employee's capabilities and authorisation level
 - § the employee's time preferences
 - § the employee's availability



The agents and their interaction

- **Client:**
the clients are the initiators of requests
- **Call Centre Agent:**
one agent of this type is modelled
- **Work Manager:**
one agent of this type is modelled for every local bank
- **Personal Assistant:**
for each employee one personal assistant is modelled
- **Employee:**
for every employee an interface is modelled



Work Manager

- decide whether or not to accept a request
- translate accepted requests into goals
- select a procedure for the current goal
- schedule the activities in the procedure
- ask Personal Assistants of selected Employees whether or not they can commit to specific activities
- for an accepted schedule, select a set of possible appointments
- communicate the set of possible appointments to the Call Centre

The Employee

- interacts with his/her Personal Assistant
- can make changes to the agenda
- can make changes to the Employee profile maintained by the Personal Assistant

Employee profile		
Capabilities:	Preferences:	Authorizations:
business loan contract	Between 09.00 and 11.00: only activities of type S	Signing of contracts up to Level 2
mortgage contract	Rather not activities of type X	Access to information up to level 2
client appointments	No appointments with Mr. Brule	

Discussion (anno 1998)

- more and more organisations offer a 24 hour a day telephone service using a call centre
- without automated support to schedule appointments, such a service is of limited value
- a multi-agent system can support distributed scheduling of employees in preparation of such an appointment

Discussion (anno 2009)

- Why has this system not been put to use?
- Employees lacked trust:
 - § Managers could inspect which jobs they would take and which they would reject
 - § Agents were fully unknown: why would agents protect their privacy?

13