Business innovation of BPO realized by Task Center and AI and Rule Engine.

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Abstract

- A demand for BPO has greatly increased, but there is room for various improvements in the productivity.
- The improvement of business productivity using AI and rule engine.

1. “Task Center” has a mechanism of collecting various tasks to be tackled automatically from existing systems and aggregating them on the screen.
2. “Dash-board” has a mechanism for allocating tasks to team members optimally according to work volume and skills through business visibility.
Concept of Task Center (1)

- Collect information from various systems and applications on behalf of users.
- Create task lists automatically.
- Users can understand what they should do by using “Task Center”.

![Diagram of Task Center integration with various systems like SAP, salesforce, Google Apps, and Office 365.]
Concept of Task Center (2)

Collect tasks of the entire team as well as individuals and automatically distribute tasks to members optimally.
**Screen of IM-Task Center**

**Collection of tasks automatically**

**Recommendation of allocation by AI or Rule Engine**

<table>
<thead>
<tr>
<th>ID</th>
<th>Task occurrence date</th>
<th>Task Center</th>
<th>Work Summary</th>
<th>Start date</th>
<th>Due date</th>
<th>Estimated time</th>
<th>Forecast completion date</th>
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<td>ユーザD</td>
<td>受け入れ済み</td>
<td>未着手</td>
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</table>
Issues that can be solved by Task Center

- Take a lot of time to manage members and allocate tasks.
- Not know the operation status of members.
- Not know how to allocate unexpected work.

- Takes time to grasp the whole task by the distributed system
- Can not grasp the status and efficiency of the members' tasks
  - Not know whether to meet the deadline
- How to assignment of unexpected tasks is depend on the manager's skill
- Not know the priority among member’s own tasks
Benefits of Task Center

1) Visualization of all tasks
   - Integrated management of various tasks
   - Less missed tasks and easier management of progress

2) Efficiency of allocation work
   Support for optimal task allocation based on member productivity and workload forecast using AI & Rule Engine

3) Visualization of future forecasts
   Forecast of future work such as overtime and cost using information such as work volume and member skills as input data
AI prediction and optimization
Mechanism of AI prediction and optimization

- Task type classification
- Estimation of individual productivity

- Prediction of task occurrence in future
- Prediction of standard work hours

Optimal task allocation based on member productivity and workload forecast
Optimization of task assignment

Conflicting goals / Restrictions to be observed.

- Minimization of work time / save of labor costs / meet of deadlines
- Compliance with work regulations (labor-management agreement / legal regulations) / Operation leveling

- Optimal solution by OR
- Optimization of index value prepared in advance
- Final decision can be made with human judgment using Task Center
Prediction of task volume

- Predicting future task volume and member load situation from past task information.

Prediction with ensemble of regression model and time series model
Prediction of task volume

Estimation of work requests number for each task type on a daily basis up to one month.
Mechanism to collect task information from business system

*Business system*
- Acquisition of data
- Agent

*Task Center*
- Crawler
- Connector
- Convert to standard format
- Summarize actuals for display
- Predict

*Information to be acquired>*
- Operating system name (application)
- What task
- Who
- When (start to end)
- Project
- Work volume (frequency)
- Data volume (cumulative volume)
- Master to access

*Manager*

*Person in charge*

*Dash-Board*
Use IM-LogicDesigner and Knime for ETL part
Introduction of “Dash-board of business process”
Dash-board of business process (1/2)

Future business volume forecast

Drill down analysis
Dash-board of business process (2/2)

Simulation per policy

- [Simulation Policy]
  - Current situation
  - Performance
  - Operation leveling

- [Display Condition of Dash-board]
  - 2018/9/1 ~ 2019/2/1
  - Incompletion Task

- Dush-board portal

<table>
<thead>
<tr>
<th>Project</th>
<th>Number of tasks</th>
<th>Volumes</th>
<th>Due date</th>
<th>Status</th>
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<tbody>
<tr>
<td>Sample project</td>
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<td>taskcenter_dashboard</td>
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</table>

- Analysis of past business conditions

- Number of tasks and volumes per project
Analysis of all of the work log including RPA

Number of orders received: 296
Number of complains: 15
4. How to create “Digital twin of business process”
Process mining

➤ Technology to identify business bottlenecks from existing system logs and extract processes automatically

➤ Improvement of the current work quickly is possible while leaving the existing system
Logs can be collected even in environments that do not use the system (1/3)

1. Confirm the digital memo

2. Touch the digital memo and employee ID card

3. Tap the start of work

4. Confirmation of update of digital memo
How to create Digital twin of business process

Get the situation of work in the field in various ways

Automatic recording of who, when, what and how long

Touch!

Logs DB

Automatic generation

Process Mining

Visualization and processing of work

Transformation

BPM

Dash-Board

Enterprise Web Solution 2018
# Case studies

<table>
<thead>
<tr>
<th>ID</th>
<th>Sector of customer</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BPO</td>
<td>Utilization of Task center in BPO work</td>
</tr>
<tr>
<td>2</td>
<td>Call center</td>
<td>Utilization of task center in Call center work</td>
</tr>
<tr>
<td>3</td>
<td>Trading company</td>
<td>Utilization of task center in office work</td>
</tr>
<tr>
<td>4</td>
<td>Construction company</td>
<td>Business bottleneck search at construction site</td>
</tr>
<tr>
<td>5</td>
<td>Manufacturing company</td>
<td>Use Dash-boards in manufacturing productivity analysis</td>
</tr>
<tr>
<td>6</td>
<td>Financial company</td>
<td>Business bottleneck search at bank window</td>
</tr>
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</table>
Conclusion
Conclusion

1. Centrally management of tasks using the Task center.

2. Consolidate team tasks and allocate them optimally.

3. Visualization of collected logs and forecast on a dashboard.

4. Automatic process creation from existing logs using process mining.

5. Logs can be collected even at sites not using the system.