Procurement methods and guidelines for Outsourcing. Railway Maintenance point of view.

Experiences of Asset Management strategies

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1. Project overview

- In February 2017 the UIC Asset Management Working Group took the decision of developing this Project during 2017 and 2018.
- The main goal is to write a guideline of Good practices for the procurement of maintenance activities, also the needed materials.
- The members involved in this Project were:

Other contributors:

- UIC was the Project Manager and Oxand was contracted.
- Thanks to the Project Team and to the AMWG for their cheach and feedback.
1. Project overview

- Project was planned in three phases

April 2017

Kick-off

Phase I: Collection

Divergence: enlarging the subgroup’s knowledge by sharing experience, studies and data.

I. Collection of input data, information and experience sharing within subgroup.

Phase II: Prioritization

Convergence: evaluation of effective methods of procurement.

II. Analysis and investigation by questionnaire to evaluate the available methods.

Phase III: Conclusion

Guideline

Finalization: detailing the findings in a publication of guidelines.

III. Restitution of project, presentation and discussion of recommendations, final report redaction.

June 2018
1. Project overview

- The main goal was to identify the best practices in Maintenance Procurement Methods to ensure a good quality infrastructures.
- It is mandatory to keep on mind one of the main goals of Asset Management: to optimize te LCC.
- For a first approximation, the project was divided into four speciallites:
  - Track and track bed
  - Safety and signalling
  - Level Crossing
  - Electric power supply

- UIC Statement: 8.3. Outsourcing
1. Project overview

- From the Asset Management point of view, this guideline:
  - helps to take the decision of outsourcing maintenance activities.
  - in case, it explains good practices and experiences of IMs.
- National regulations have significant differences between countries, in spite of the same framework: European Directives.
2. Legal framework

- Directive 2014/23/EU on the award of concession contracts
- Directive 2014/24/EU on public procurement
- Directive 2014/25/EU on procurement by entities operating in the water, energy transport and postal services sector
- Internal procurement regulations of each IM

Activities
- Inspection, Maintenance, Renewal, Planning and Materials supply.

Pre-qualification of the Contractors
3. The good questions

- Is my decision aligned with the company’s outsourcing policy? [see chapter 1]
  - It is recommended to write an Outsourcing Strategy.
  - Each asset must be analyzed to determine the scope that can be outsourced regarding the IM Policy.
  - Outsourcing must be a strategic decision, not a forced solution.

- Four steps:
3. The good questions

- This guideline doesn’t give magic formulation for outsourcing decision. The first step to be done is a **Supply Market Analysis** [chapter 1.3].

- How many suppliers are there in the market and what is each supplier’s size (in terms of number of employees and production capabilities)?
- How are the suppliers geographically distributed?
- Which suppliers are the market leaders, and which are the market followers?
- What are the type and level of barriers to entry and exit for potential suppliers (that is, the ease with which new firms can enter and secure a place in a viable market)?
- What is the size of the total market and relative size of each supplier (market share by revenue and/or profits)?
- What is the level of market concentration? (Do a few large firms make up the bulk of all turnover)?
- Have there been any mergers and/or acquisitions in this industry recently, or are any predicted?
- What is the level of product differentiation between firms?
- What are the role, profile and function of any key industry bodies?
- Which firms appear to lead in price increases or decreases?
- Do suppliers have interests in other markets?
4. Contract development

- Questionnaire was developed in last quarter of 2017. **Contract types [2.1].**
- The most used procurement methods are Fixed-Price Fixed-Scope.
- Inspections are done in-house mostly.
- To keep control: Use KPI’s proposed in [chapter 2.4]
  - Quality of the asset
  - Train delay
  - Availability
  - Track possession
  - Etc.

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**Figure 2 : Distribution of the contract types per activity**

<table>
<thead>
<tr>
<th>Type of asset</th>
<th>Type of actions</th>
<th>PM1</th>
<th>PM2</th>
<th>PM3</th>
<th>PM4</th>
<th>PM5</th>
<th>PM6</th>
<th>PM7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Superstructure</td>
<td>Inspection</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<tr>
<td>2. Safety and signaling</td>
<td>Inspection</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Renewal</td>
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<td>1</td>
<td>0</td>
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<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Planning</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Material supply (sleepers, ballast...)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3. Level Crossing</td>
<td>Inspection</td>
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<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td></td>
<td>Maintenance</td>
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<td>0</td>
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<tr>
<td></td>
<td>Renewal</td>
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<tr>
<td></td>
<td>Planning</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Material supply (balises, connections...)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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**Figure legend**

- 0: Contract not used for this type of activity and asset
- 1: Contract is rarely used for this type of activity and asset
- 2: Contract commonly used for this type of activity and asset
- 3: Contract widely used for this type of activity and asset

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**Observed practice:**

In Spain an analytic accounting on the cost of the last 10 years allows the IM to estimate the cost of maintenance per activity and per km.

In Italy, the contractor is provided with the overall logical data model. The IM defines the technology and the software to be used to deliver asset information, information flows and system interfaces.

In Finland, the quality of inspections is ensured by using only inspectors who have passed an annual test organized by the IM.
5. Supplier selection

- Bids evaluations are strongly released to local regulations. E.g. In Sweden, the IM is concerned about not paying extra for something that is not mentioned. On the other hand, in Spain sometimes some improvements are valuated.
- Technical criteria is considered for bid evaluation: quality, experience.. But there are other aspects could be well valuated: social responsibility, environmental certification, ISO 55.000, for instance.

- **Awarding methods [see chapter 3.4]:**

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single source</td>
<td>Balance between price and technical criteria</td>
</tr>
<tr>
<td>Most Economical Advantageous Tender</td>
<td></td>
</tr>
<tr>
<td>Request for quotations</td>
<td></td>
</tr>
<tr>
<td>Competitive dialogue</td>
<td></td>
</tr>
<tr>
<td>Divided procurement</td>
<td></td>
</tr>
</tbody>
</table>
6. Contract Management

- [Chapter 4.1, 4.2 and 4.3]:
  - For the beginning of the Contract
  - During the Contract
  - At the end of the Contract

- Continuous development and monitoring of the market situation.
- Periodically contact with providers.

An observed practice and strongly recommended (computerized maintenance management system):
7. Some conclusions

- The key-point to watch when outsourcing activities can be summarized as follows [chapter 5]:

**Inspection**
- Ensure high level of control (spot checks of performed work and verification of asset management systems)
- Ensure IM get back all information on asset (conditions, maintenance history, etc.)
- Provide to supplier guideline for inspection, to guarantee homogeneous inspection management
- Select a third party-supplier for inspection, independent from construction/maintenance activities
- Ensure inspection frequencies and activities are performed based on risk analysis (risk-based inspection)

**Evaluation and Selection of subcontractors**
- Ensure the supplier is different from the one processing the material supply/maintenance/renewal
- Make sure with the supplier that the same resource will realize the evaluations (providing the same fairness and verdict)

**Work delivery planning**
- Ensure the alignment with the asset management long term strategy (relevant KPIs and appropriate control)
- Reserve adequate resources to coordinate the suppliers

**Material supply**
- Control the quality of the material:
  - Supply directly the material to be used
  - Impose the specific materials/equipment to be bought
  - Define the required technical standards
- Control the “expert” status of the supplier and at what prices he buys

**Maintenance and renewal**
- Ensure the alignment with the asset management long term strategy (relevant KPIs and appropriate control)
- Provide a budget reserve for the hidden costs
- Provide a resource with appropriate management skills to follow the suppliers
- Ensure IM get back execution reports
- Ensure a strict control on the execution reports, the data format and security to make sure the IM always maintain his assets knowledge
- Continuous development by monitoring the market situation, learning from past experiences and consulting peer IM’s
8. Travelling from an in-house model....

- **13.155 km** of lines
- **16.663 km** of tracks
- Very old lines (>100 yrs)
- Commuter lines (>500 trains/day)
  - VS low traffic lines (<10 trains/day)
- Passenger and freight trains
8. Travelling from an in-house model….

- Earthworks, structures and tunnels: Infrastructure Maintenance
- Ballast, rails, sleepers and fastening systems: Track Maintenance

**ANCIENT MODEL (UNTIL 2017):**
- A public tender for 20 lots, each for one maintenance base
- 20 Maintenance bases: The winner company works by a Framework Contract for 4 years.
- 20 Maintenance bases: 20 maintenance teams, machinery and criteria.
9. ...to an outsourced model.

NEW MODEL (FROM 2018):
- A public tender is open for 7 lots, divided in 6 regional networks (1668 mm gauge) and one for 1000 mm gauge.
- On this way, staff and machinery could be shared. A synergy is expected.
- The incidents should be fixed up before 1,5 h for commuter lines, 2,5 h for long distances lines and 4 h for freight and low traffic lines.

Annual budget (Public tender):
- 69 M€ for preventive maintenance
- 33.8 M€ for corrective maintenance (programmed actuations, according to an improvement network plan)
9. ...to an outsourced model.

NEW MODEL (FROM 2018):
- A monthly paid is paid to the winner company, but it could be decreased according to the penalties.

Penalties (until 15%):
- Execution plan: % actuations done of corrective maintenance plan
- Availability: Mean time (hours) of incidents fixed up.
- Track Quality: Adif measures two times a year the track quality.
- Infrastructure Quality: Effectively of the maintenance actuations on bridges, tunnels and earthworks.
9. ...to an outsourced model.

- **2.777 km** of lines
- Very recent infrastructure
- Passenger traffic
- High reliability, availability and maximal safety

The network has different characteristics:
- Modern infrastructure
- Homogeneous traffic: Just passenger traffic, trains and speed similar
- A high track quality and high reliability are demanded.
9. ...to an outsourced model.

HIGH SPEED MODEL
- A monthly toll is paid to the winner company, but it could be decreased according to the penalties.
- 14 maintenance bases: One base for 200 km of high speed line.
- Penalties (until 7.5%):
  - Reliability: Number of speed limitations
  - Availability: Mean time (hours) of incidents fixed up.
  - Availability: Mean time (hours) of S&C fixed up.
  - Availability: Mean time (hours) of fences fixed up.
  - Geometric and dynamic track quality EN 13848
  - Execution plan for the fire protection
9. ...to an outsourced model.

- In all cases, the model that is now being adopted is:
  - **Public tender** of contracts for middle term (two years or more)
  - In case of signalling system, until 20 years (obsolescence time) done directly by the manufacturers (restrained tender)
  - **Monthly payment**, it could be decreased according to the execution plan, reliability, availability, track and infrastructure quality index.
- Corrective and predictive maintenance is paid separately.
- There is a network improvement plan (programmed actuations)
- There are defined penalties for the Maintenance Company, and Adif measure the operation conditions periodically.

From pay salaries  To buy services
10. Can all activities be outsourced?

Control and Handback operations

- According the actual Law, the Railways Infrastructure Agent is a physical person who has the capability of control and handback operations.
- Commonly the Railways Infrastructure Agent (RIA) belongs to the Infrastructure Manager staff.
- However, since 2010, the Law allows that an Agent of a private company do control and handback operations.
- This situation was denounced by the Union of workers.
- Before 2015 there was the mandatory of two Agents: the RIA and the Railway Traffic Agent (RTA). Since 2015, depending the kind of works, it’s possible all maintenance operations were done just by RTA.
- The training of the RIA and RTA is defined and regulated. The qualification must be renovated every 3 years.
10. Can all activities be outsourced?

Information collection
- Data Management
- Market Analysis
- Data Analysis
- Inspections?

Strategic planning
- Outsourcing decisión
- Contract Management

Execution
- Selection of contractor
- Contract performance

Control and handback
- Computerized maintenance management system (CMMS)
- Handback operations
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