

**TITLE:** Costing app – create your own tool or buy an established IT solution?

## **Introduction**

In 2021 we began preparing for the national cost analysis in cooperation with hospitals. The aim was to calculate new weights for DRGs that would be based on actual costs in Slovenian hospitals and would reflect Slovenian reality (in Slovenia, we have been using the Australian DRG system and weights for 20 years).

To:

- help control the data we received from hospitals,
- distribute costs per individual case,
- calculate weights,
- and prepare simulations of the impact on hospital revenues,

we wanted to use one of the existing IT solutions.

For this purpose, we researched the market and carried out a public procurement, which unfortunately failed due to the strict requirements of Slovenian legislation. Thus, we entered 2024, when new weights were to be calculated, without IT support, and there was no time left to repeat the procurement. Therefore, we decided to create our own costing application.

## **Methods**

Hospitals sent us data in 2 ways: XML files with data on individual cases, and an Excel file with a general ledger cost matrix.

We used the R programming language to read the data and program the controls.

We exported the control results to Excel so that we could send them back to the hospitals, who, based on the findings of the controls, corrected the data.

We also programmed the entire methodology for cost distribution and weight calculation in R.

The data was then transferred to a BI tool. We use MicroStrategy in our institution.

We used Excel to simulate the impact of the new weights on hospital revenues.

## **Results**

The dashboards in MicroStrategy allow for a detailed overview of costs by individual case, identification and analysis of outliers:

- We identified outliers and, by drilling into the data, determined the reason for it.
- We determined which hospitals were over- or under-coding.
- The calculated data also shows which hospitals are "expensive" in providing their services. We provided this data to the hospitals so they could benchmark.

## **Discussion/conclusions**

Advantages of such an approach:

- The team working on DRGs gained a lot of knowledge and understanding of the data and the costing methodology when developing the application.
- The costs of developing the application were minimal.
- The learning process of using the application would be the same even with purchased IT solution.
- We plan to further develop the application, as we want to transfer everything we did in Excel to it.

However:

- Our team's knowledge is limited.
- Not all processes are yet automated.
- Established costing SWs contain other functionalities, integrated controls, know-how.
- We do not want to be dependent on one employee who knows how to program in R.

Therefore, we plan to conduct another costing SW market survey when we will be able to evaluate existing solutions with greater knowledge and make an informed decision about further steps.