Leveraging Data Analysis in Swiss Ice Hockey Clubs

*A practical approach to the compute-to-data method*

W.SDA01\_Sports Data Analysis

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08.09.2023

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# Project Idea/Use Case

Data-driven decision-making has become increasingly crucial for teams and organizations seeking a competitive edge. This trend is also visible in Swiss ice hockey. While technical statistics such as number of shots on goal, bullies won or expected goals are established and available at player level, data on individual physique is not yet widely used although data is already available.

The missing basis for comparison with other clubs is a possible reason for the sparse use of this data. Since performance or tactics of a club can be derived from personal player data, clubs are not willing to share this data across the league. Our approach aims therefore to compare individual player data to the pooled data of the entire league. To overcome the hurdle of sharing data and compare the performance of individual players with other clubs while ensuring data privacy and security, we use the innovative “compute-to-data” approach to enable comprehensive data analysis.

# Technical approach/methods used

As already mentioned in chapter 1, The compute-to-data approach acts as core piece in our project. It allows us to perform data analysis on the data provided without need to know the data. Instead of analyzing the data in a central repository, the analysis can be brought to data with programmed algorithms. The approach ensures data privacy and minimizes the risks associated with data transfer as well.

For programming our algorithms, we use Python and especially the pandas package.

# Results

Graphics generated to include

Interpret them

# Reflexion/Lessons learned

As we have seen, the compute-to-data approach could be a possible way to improve data analysis over the whole National League in Swiss ice hockey. The benefits we have seen are manifold. As only pooled data can be accessed on the marketplace, the individual player data remains secure. The comparison to pooled data across the whole league can further improve individual player performance as training plans can be even more personalized. In addition, the injury risk can be reduced, which also contributes to the success of the team. Furthermore, coaches can gain valuable deeper insights into his team and use information for developing winning strategies.

As there are many benefits, we also want to speak about possible limitations. In order to establish a standard across the league, there needs to be a consensus on how to look at and classify the data. Let’s look at the classification of acceleration, which can be clustered in slow, moderate, fast, and very fast serves as an example. The clusters need to be built the same way in every club participating.

The compute-to-data approach was completely new to us. Combined with the use of the blockchain technology and the Ocean marketplace, it enabled us deep insights in new areas of data science which we didn’t have seen yet. We see this approach as an opportunity for future work since data privacy will become an even more important topic in future. Our learning effect using tis setting was accordingly high. It was also great pleasure to see, how data analytics is implemented in Swiss sports and get to work with real life data. We have seen, that sports data analytics is not yet exploiting its full potrential in Switzerland. Therefore, we really look forward how it will develop in medium and long term.

# Bibliography