The contemporary shift from value chains to value networks has been widely observed and accepted by both researchers and practitioners. Emerging modern businesses (e.g. e-platforms, e-sports, open source software) are often built around very little tangible assets with the vast majority constituting relations, skills, knowledge, etc. The value creation has thus become significantly less dependent on the ownership of the tangible assets which has become complex and expensive in use. Nowadays, competitive advantage relies more on the ability to leverage network relations in order to either access the resources or access a value-creating service. Specifically, value in such service-oriented environment is found to be rather co-created than exchanged by both providers and clients as a result of various interactions. The complex networks of actors, resources and diverse relationships between them essentially build the modern world but the literature of network governance and orchestration lacks a data-driven, adaptive process of managing them. Such a process, in order to be usable in the practical context, should be able to (1) adapt to different network configurations, (2) react to events and changing dynamics in the network, and (3) provide an insight on possible effects of certain events (triggered either internally or externally) occurring in the network, and (4) its effectiveness ought to be verified empirically and quantified, in order to provide practitioners with a reliable instrument.

Can we predict events occurring between nodes in an inter-organizational network?

It is suggested that this complex scientific problem can be solved by combining accomplishments of the network and inter-organizational management theory with state-of-the-art methods of predictive modelling in order to create a network orchestration environment in which human decision-makers are augmented by algorithmic assistants. The need for such decision support systems (DSS) supporting managers with complex managerial tasks and leaders with communicating decisions has been repetitively signaled in the literature for a long time by scholars of various disciplines. However, there is a research gap in forecasting behaviors of inter-organizational networks. This context is particularly cumbersome due to (1) significant number of a network's nodes and linking ties, and (2) dynamic changes occurring in the network. These make comprehension of the occurring events (the network's behavior), interpretation of their impact on future events and, consequently, informed decision-making process in the network context extremely difficult for a human and creates an under-developed, yet increasingly significant niche of network management support systems (NMSS).

Therefore, the main objective of the proposed research is to develop and verify the predictive model of events occurring between nodes in an inter-organizational network using conjoint Big Data and Machine Learning techniques and descriptive data published by the network's actors (via their social media profiles, web sites, etc.). Input of the model is assumed to be classes of occurring events between the network's actors whereas the output of the model is assumed to be classes of events expected to occur between the actors in the future which will test the fundamental hypotheses:

- *Hypothesis 1: There is a positive correlation between a class of events occurring between nodes of an inter-organizational network and a class of subsequent events occurring between the nodes.*
- *Hypothesis 2: There is a positive correlation between a class of events occurring between nodes of an inter-organizational network and a class of subsequent events occurring between* ***nodes of a different network***.

The research object chosen to validate the proposed hypotheses is the network of entities focused around eSports streaming and spectating. This choice was dictated by the observation that majority of the network's actors and relationships tend to be located in the Internet space and they are therefore believed to be easily accessible via web services. This creates an additional scientific goal of the proposed research – analysis of actors, resources and relations in the eSports streaming network. A research gap of such work in the literature has been identified. Especially, value streams and value generation logic in the eSports context does not seem to be sufficiently understood. The research proposal is believed to fill this gap as a result of the network analysis and consecutive network modelling.

The research project will consist of four tasks. *Task 1* will be dedicated to construction of a theoretical background supporting the predictive model of the network, consistent with the fields of inter-organizational networks and predictive modelling. In the course of *Task 2*, the web services containing descriptive data on three eSports streaming networks will be explored and the data will be extracted and transformed to the required format. *Task 3* will be aimed at developing, training and validating the predictive model in order to find the positive prediction rate and prove *Hypothesis 1*. Finally, during *Task 4*, the data will be clustered in respect of event category and scrambled across the three networks in order to find out if the positive prediction rate can be maintained using a predictive model trained on a different network's data to prove *Hypothesis 2*.