In this paper we extend the standard approach of correlation structure analysis for dimension reduction of high dimensional statistical data. The classical assumption of a linear model for the distribution of a random vector is replaced by the weaker assumption of a model for the copula. For elliptical copulae a correlation-like structure remains, but different margins and non-existence of moments are possible. After introducing the new concept and deriving some theoretical results we observe in a simulation study the performance of the estimators: the theoretical asymptotic behavior of the statistics can be observed even for small sample sizes. Finally, we show our method at work for a financial data set and explain differences between our copula based approach and the classical approach. Our new method yields a considerable dimension reduction also in non-linear models.