In machine and plant automation model-driven programming of Programmable Logic Controller (PLC) software is becoming an alternative to the state-of-the-art programming. As part of the related work the authors first present the results of a previously finished project on model-driven approaches for Multi Agent System (MAS) PLC programming, in particular using the Systems Modeling Language (SysML). A tool supported procedure model was developed that assists automation engineers implementing MAS in order to enhance reliability of the plants as well as reusability of implemented modules. Subsequently, related work on the evaluation of PLC programming approaches is discussed and the qualitative evaluation study for our newly developed procedure model is presented. In the last section, we present the study results and discuss our findings and their meaning for future developments and experiments.