

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

From the thesis study, an original universal alpha-numeric hybrid-typed classification and coding system has developed for the whole radial tire components systematically, based on

- The concept of the well-known commercial classification and coding systems: MDSI, Optiz, MICLASS
- The system selection criteria defined in chapter 2
- System analysis and design in chapter 3

The benefits of having universal fixed-length code structure for the whole radial tire components are:

- The simplest system we could ever have
- High user-friendly
- Less development period
- Simple structure, but provide effective design retrieval
- Low development cost

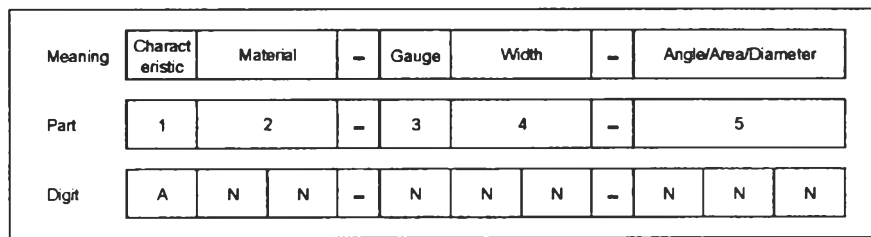


Figure 3.2 Classification of Structure of Radial tire components

On the other hand, the drawbacks of having universal classification and coding system are:

- The limitation of classification and coding functionality
- The limitation of applying other group technology application
- Inflexibility to other product lines
- Return less "HIT" rate as it could be

In order to achieve the initial objectives, local tire designer has to apply "The design retrieval application", which has been developed with the application for coding in parallel during the tire design process. The application will be more valuable after increasing more "Retrieval" pattern, which requires some additional analysis from this study.

However, besides of the initial objectives, the concept from this thesis study is extremely valuable for further development of other "in-house" applications, such as knowledge management, or expert system.

6.2 Recommendation

According to all the study presented in this thesis, there are some of recommendations for the C&C, data base for radial tire components, and application software fore coding and design retrieval as following:

6.2.1 Classification and Coding System

1) Introduce additional code structure

In reality, computer ability can handle the complexity of code structure effectively; the further analysis on defining additional code structure is strongly recommended in order to have more searching ability and less retrieving time.

2) Take into account the choice of material

The current GT code structure has limitation of selecting material of component. The additional study should be analyzed this matter in order to be the guideline of selecting material to prevent proliferation of material besides component.

3) Proliferate to the other product lines in the factory

Further study in other product lines in the factory is strongly recommended in order to gain highest benefits of part standardization from the pilot system of design retrieval application.

4) Apply the other GT applications

Besides the possibility to introduce additional code structure for higher effectiveness in design retrieval, some useful information could be added in the code structure and data base for the further group technology application for manufacturing improvement, such as process planning, cells manufacturing, etc.

6.2.2 Data Base of Radial Tire Components

The current data base has been developed on MS.Excel, which has limitation of quantity of records and searching ability. The MS.Access or any SQL application is more suitable and powerful for data base management. As a result, it is recommended that the application for data base of radial tire components should be changed from MS.Excel to MS.Access. As both applications are developed by Microsoft, there should be no in-compatibility problem at all.

6.2.3 Application for Coding and Design Retrieval

1) Develop the applications on the working sheet of tire designer

The application for coding and design retrieval could be developed on the working sheet of tire designer to increase their productivity and prevent mistyping in each component.

2) Retrieve ability

- As the ability of retrieving existing design should cover more the level of complex part, or assembled part,
- The receiver for “Range of each design parameter” should be developed and added to the application. In case one of the design parameters of the new design does not match to the existing design, the existing part is almost identical to the new design, the application can still listed out.
- The further study should be performed to develop the “forecast” feature. The concept “Artificial Intelligence” could be applied somehow in this case.