Standardisation for new concept products: The need to accelerate localisation

by Nobuyuki TOSHIKUNI and Katsuhiko UEMURA

JAPAN

1. Introduction

The current situation with standardisation for existing products, offers manufacturers the benefit of a unified technical specifications across many regions and countries. Furthermore these common technical requirements provide standardised safety systems allowing manufacturers to develop machinery more efficiently for sale into a larger market.

However, standards are written for product designs which are current, and cannot cover all new concepts and ideas. For this reason, standards are sometimes unavailable for new concepts and ideas. The system for creating standards is a slow process and in the period before a standard is produced, manufacturers must try and satisfy safety concerns that may differ between each authority.

2. Diversification in the world market

In the current world markets, Kubota has introduced products mainly across North America, Europe, Asia and Oceania area. There are wide variety of standards and local regulations. These differences may come from situations based on various regional, ethnical, cultural, historical reasons as well as, type of crops, climate, etc. Under this situation, it is difficult to determine which standard is suitable or not. It is an important and essential point to take a balance between local optimisation and standardisation.

The world market in agricultural products has two big segments to consider staple food: Rice and Wheat. Kubota has increased the ability in the area of rice cultivation in Asia, but there are big differences of required specifications for the tractors in dry field farming with high mass and traction requirements or the tractor type used in the paddy field with small body and light weight.

In Japan in the 1960s, there were almost no tractors available which had an ability to be used in paddy fields. Kubota has promoted the mechanisation of agriculture in Japan by tractor developments with paddy specification. After making a success with tractor manufacturing, Kubota extended the overseas tractor markets by developing attachments such as mid-mount mowers and front loaders. Due to the small size and light weight of these tractors, standards for full-scale crop tractors were not suitable for our small tractors as they were too onerous and complex. For example, in the use of various types of electronic equipment or the structure and strength of ROPS, etc. may cause a small tractor to lose the balance of body size and simplicity at reasonable cost.

Although standardisation is a good method to create order in a chaotic situation by devising agreed rules, their integration is difficult when the specifications are rooted in the history and culture of different regions. For example, equipment such as trailer hitch designs have evolved differently in across the EU as conditions, methods of use and customer requirements have varied regionally.

3. Introduction of new concept products to other area

If we consider a good method to develop new concept products, understanding local conditions, requirements and regulations are very important. If we confirm the method of development with
Kubota Corporation from the technical and marketing point of view, we must develop products by putting our engineers deep into the actual working conditions of the target regions to understand the real needs of our customers. It will make our customers’ requests to us clearer and find new functions. Even products already built for a large market in another region, at the introduction stage to new different regions, some modification may be needed or even completely redesigned to meet local standard or requirement.

If there are no standards in these new regions for a new kind of product, we should work with many kind of organisations communicating with Authorities, Notified Bodies and industrial associations. We have this kind of situation with several specialised products. For example, our “Power Krawler” and utility vehicles.

3.1 Power Krawler

Kubota has introduced tractors called “Power Krawler” (Fig.1) which have rear triangular crawler units instead of rear wheel tyres, into agricultural markets of Japan since 1997. Power Krawler has excellent workability on soft ground even on a slope or in wet conditions providing better traction than a normal wheeled tractor. The advantages over a full crawler type tractor specification is its 30 ~ 35km / h road speed, whilst maintaining improved traction capability and stability in a wet paddy working environment. Power Krawler has been well accepted in the Japanese market with its low ground pressure and ability to keep a straight path when using implements that produce a big side load, useful when used in a paddy field.

In 2010 to 2011, we planned to introduce Power Krawler into European market. There were several different opinions from authorities and notified bodies about conformity to the tractor directive with the combination of regular front tyre and rear crawler units. After a year of consultations with the authorities and notified bodies, we received a tractor homologation as a small series in tractor directive with limited volume of introduction for selected country. We could eventually introduce this unit but the schedule was delayed from the original plan.

3.2 Utility Vehicle (UV)

UV (Fig.2) has established a big market in the U.S. since the 1990s. Manufacturers have introduced UV into the European market, but there is no harmonised standard to design these units to in order to comply with the EU Machinery Directive. Currently, work is ongoing to create a SbS (Side by Side) standard in Europe, but it will be several years before to this standard is completed and adopted.

Furthermore, there are also European laws for road homologation and local road homologation in each EU country, units are being introduced using several different standards like T category for tractor, or L6, L7 category for quad, or earth moving machinery. Sometimes manufacturers need to resolve road homologation issues separately on a country by country basis.

4. Conclusion

Standardisation brings benefits for all manufacturers, but if applicable standards are not available for new products in the relevant markets, we should have an alternative way to reduce the risk to the manufacturer when developing and introducing new product designs. Manufacturers need to promote and participate early in the process of the writing a Standard and help establish a procedure for adopting local standards at the initial stage of product introduction.

Kubota is based in Japan and has benefited from the use of European unified standards and
regulations in the introduction our products into the EU member States. Our activity level with standardisation may not be same for product development and introduction. It is very important for companies based in multiple regions, like Kubota, to have an enhanced ability to respond to industry associations and activities for standardisation in order to design our equipment to regional differences.

Kubota will continue to contribute to the industry and its customers, by providing improved products and building strong relationships as agricultural machinery manufacturers from Asia. We will promote the localisation all over the world in the various aspects in the future.
Figure 1 - Kubota Power Krawler in the paddy field

![Kubota Power Krawler in the paddy field](image1)

Figure 2 - Kubota Utility Vehicle

![Kubota Utility Vehicle](image2)