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Electronic tools management for metal and wood industries

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In our research we inspected and revealed the possibilities of applying the electronic tools management for metal and wood industries. By virtue of this, there is no doubt about it, that this is a very important area in improving the competitiveness of metal- and wood industries. In the price of a product, the costs of tooling and tool management represents quite high rate. Because of that, the aim of these new tool management systems is to cut down the tool management costs but with improving the production process by necessity, they also cause increased product quality.

We introduced the RFID based tool-management system at two companies. One of them is a metalworking company where the different kinds of products in different sizes produced by 10 rams. The number of the used tools exceeds the 1000 pieces, while the number of applied press stamps is 10-15 times more.

We also introduced this system at a smaller woodworking company what produces numerous semi-finished and finished products with CNC routers (*Figure 1*.). Usage of the tools compared to the size of the company is significant.

Figure 1.

Figure 2.

The efforts based on our metal- and wood industry research brought new results:

1.) We created the "thinking" tool which is differs from those used in the metal industry. We also modified the tool-fixing bodies with the placement of an RFID chip. (*Figure 2.*)

2.) The lifecycle-management system filtered out the badly designed tools both in the metal- and in the wood industry and proved superiority of diamond tools against the classic tools.

3.) According to our experiment, we built a widely applicable tool lifecycle-management system (*Figure 3.*) that can be used both in small as well as in large metal-processing facilities, and contains both the special software and hardware.

4.) With the help of the tool-lifecycle management system we managed to define a facility-size independent process plan, for applying this workflow both in small and large facilities.

5.) We also designed a smaller version of the tool-lifecycle management system, but outside parties should also be involved in the process to meet the exact needs.

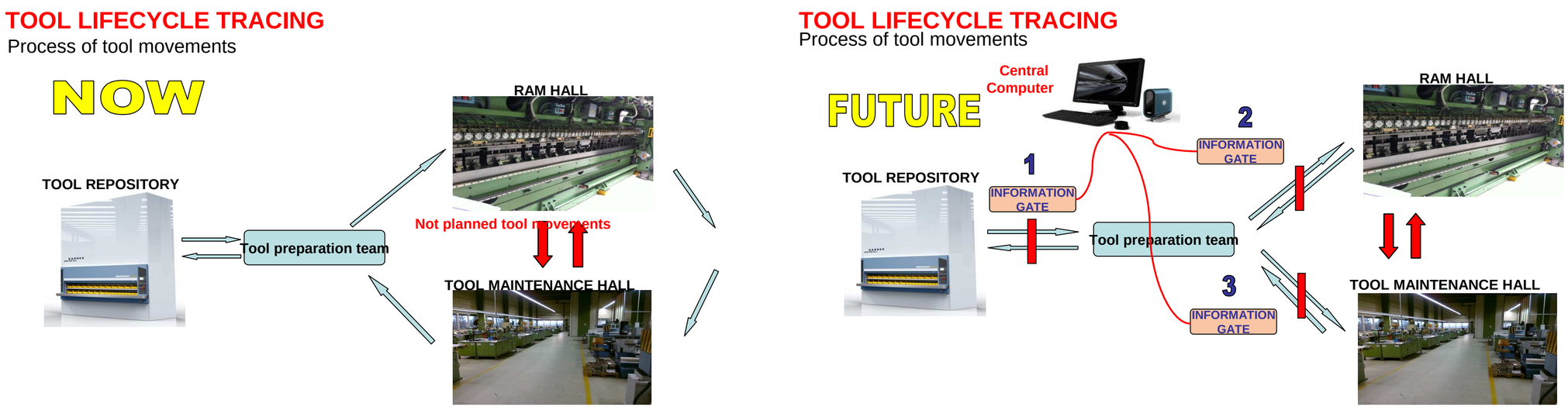

Figure 3.

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