

“Full focus on innovation”

B&R caused quite a stir at the 2014 SPS IPC Drives with the unveiling of mapp technology. The automation specialist claims that mapp slashes the time it takes to develop application software by an average of 67% – dubbing it a revolution in automation software. We sat down with Christoph Trappl, manager of International Applications at B&R, to find out what's behind all the hype.



Christoph Trappl
International Applications Manager, B&R

"mapp technology virtually eliminates the need for glue code. According to a benchmark study by the independent LIAM institute, mapp was able to reduce the amount of source code by 83%."



Christoph, a 67% reduction in software development time sounds very impressive. How did you arrive at that number?

Remember, that's an average of 67% – in some cases it can be even higher. The number itself is an objective measurement obtained by the independent LIAM institute. They performed a benchmark study in which the same group of programmers was asked to write a flying saw application – one that included a recipe system, data management, axes coupled via cam profiles and HMI application – first using mapp and then using standard IEC 61131 and PLCopen functions. These results have been backed up by numerous pilot applications in the areas of packaging, metalworking, plastics and robotics. On average, software can be developed in a third of the time using mapp.

Where is it that mapp saves so much time?

From talking to our customers, we know that the majority of time and resources spent on developing a new application goes into programming the core functionality. In addition to things like motion control functions, this also includes recipe management, machine diagnostics and much more. We're talking about 60 to 80% of the software development effort for a machine or plant. So that's exactly where we focused our efforts with mapp. Unlike other products out there, mapp components are not limited to motion control functions, which is why they are able to deliver such massive time savings.

What does that mean in practice – how do these components work?

The programmer moves the desired mapp components into the application using drag-and-drop and then configures them there graphically. Yet the components themselves are only one part of mapp technology. They wouldn't be nearly as powerful without mapp links, which allow mapp components to exchange the data they need – alarm information, for example – completely automatically. Avoiding glue code as much as possible means that there is considerably less source code. The LIAM institute's benchmark study found that mapp technology eliminated 83% of the source code. This makes programs both easier to understand and less expensive to maintain.

Can you give me an example of a mapp component?

Absolutely. Pretty much every machine needs a recipe system, so let's look at the mapp component responsible for that. First off,

mapp follows a model-view-controller framework, so an application is divided into the data model, the view and the controller. For a basic recipe system, you need to drag and drop two different components into the application. One is the recipe system itself; the other is the RecipeView for viewing the data. These components are connected automatically by a mapp link. You've now got a functioning recipe system, and you didn't write a single line of code.

But different machines can have very different requirements for the recipe system. How flexible are mapp's recipe components?

With mapp's modular structure, the only limit is the developer's imagination. You can implement a small solution with three variables or a complex machine with 500 or more. Decentralized software architectures are also supported. A machine's optional features and their additional parameters can be enabled or disabled with a click of the mouse. Of course, mapp links ensure seamless communication with other mapp components – a user management system, for example. The recipe system also comes with popular functions such as filtering and sorting already integrated. Recipes can be saved in either CSV or XML format, and we're currently working on an encryption option.

Speaking of development, what can we expect from mapp down the road?

We launched mapp in the fall of 2014 with an array of 70 functions that cover everything from core functionality to all of the most prevalent axis movements. You won't catch us resting on our laurels, though. We're constantly expanding the selection of components to make software development even easier for our customers. The overwhelming interest following the SPS IPC Drives has confirmed that we're on the right track. We've been flooded with requests.

How are things going to change now that your customers are able to develop so much faster?

First and foremost, it's going to mean that they get their machines to market faster and at lower cost. Of course, machine builders can also elect to take the time savings and invest it in implementing more of their specialized process know-how. Either way, machine manufacturers can concentrate on further expanding their market position – with their full focus on innovation. ←