CNC Shopfloor Management Software – Ecosystem
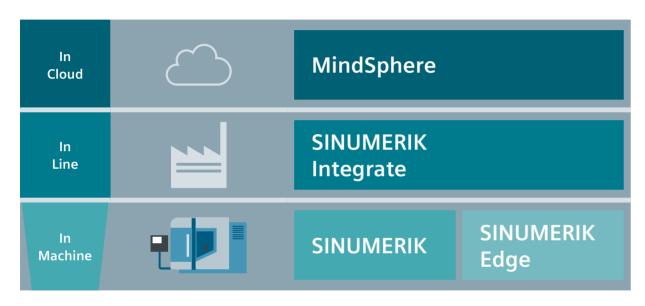
siemens.com/machinetools-digitalization

With the three levels »In Cloud«, »In Line« and »In Machine«, we have created a future-oriented IT architecture using the CNC Shopfloor Management Software. These levels correspond to the three platforms MindSphere, SINUMERIK Integrate and SINUMERIK /SINUMERIK Edge with numerous customized functionalities, from the field through to the cloud.

Further, there is the possibility of creating new business models, for example, in the service area. Digitalization allows to open up optimization potentials, which have so far not yet been identified, thus sustainably increasing the productivity and competitiveness.

The three levels of digitalization

In Cloud	☁ MindSphere
In Line	🏭 SINUMERIK Integrate
In Machine	SINUMERIK / SINUMERIK Edge

With **SINUMERIK Edge** (In-Machine level), Siemens brings the performance of the edge computing approach, which is established in the IT world, to the shopfloor and thus directly onto the machine. The customized hardware and software solution processes and analyzes even high-frequency process data in real time. These data can also be transferred to the cloud and used for cross-location visualization. Siemens provides customized applications (Edge Apps) for this. Machine manufacturers and service providers can develop and implement their own Edge Apps already today.

The **SINUMERIK Integrate** platform (In-Line level) provides numerous applications which allow to optimize the availability and productivity on the basis of local, user-operated servers. Thus, a local version of the application Analyze MyCondition supports production-related condition monitoring, among other with equability, circularity and universal axis tests. The 3D visualization tool Analyze MyWorkpiece /Toolpath allows to display the finished part geometry from the CAD system, the NC program and tool path recording after the machining process at the same time and in a three-dimensional form, and compare them with each other. Thus, the user can identify unnecessary downtimes and optimization potential within the NC program as well as possible fault causes during the machining process.

The **MindSphere** (In-Cloud level) platform provides further customer benefits. For example, functional applications such as the Manage MyMachines MindApp can be used by connecting them to the cloud. Machine operators can thus visualize the operating statuses of individual machines and complete machineries via the web – independently of the location. This makes your operations more transparent and more efficient. In turn, machine manufacturers can continuously record the machine status remotely using Manage MyMachines. They can thus maintain their machines more effectively and open up new business models, e.g. for the service. The various services and Apps are conveniently set up and managed from the cloud.