MyB
is my Suite

MyB

Belotti IoT Suite for the integrated and highly customised management of the machining centers

Suite MyB

Event notification

bCare
- TeleService
- Advanced Log
- bMaintenance

BES

bOpen

bCollision Detect

Barcode

bView

bUser

Dual mode: SingleUse / FactorySupervisor

What is MyB

MyB is the Belotti IoT suite for the integrated and highly customised management of cyber-physical auxiliary services of the machining centers. It allows to:

- measure and optimize productivity;
- manage the interconnection within the factory environment;
- guarantee constant and efficient support by the Belotti Service.

Extremely versatile, the system is designed to meet the main needs in terms of **production optimisation and durability performances for Belotti CNC centres over time**. Moreover, it works with other machines using the following numerical controls:

- **Siemens**
- **Fanuc**
- **OSAI**
- **Heidenhain.**

MyB enhances the overall value of the machinery by combining the latest digital tools with the traditional technologies already present in the factory. Indeed, the suite can be set up for retrofit machines with CNC Siemens PowerLine, NUM, SELCA, only after a technical feasibility assessment.

MyB Suite is supplied with the bCare module as basic configuration. The other modules can be integrated and activated according to the customisation required.

Advantages

CUSTOMIZATION AND VERSATILITY
MyB can function with different NCs, also acting as retrofit for existing machinery. Thanks to the wide variety of modules to add to its basic configuration, this solution adapts to each production need.

EFFICIENCY AND PERFORMANCE OPTIMISATION
The suite increases productivity by reducing the risk of human errors, optimising set-up times and helping to correct inefficiencies, also thanks to the analysis of the data collected from every machine and in the whole factory.

CENTRALISED MANAGEMENT
It is possible to control entire production lines with different machinery from a single centralised supervisor.

ENHANCED VALUE OF THE MACHINERY AND INTERCONNECTION FOR THE FACTORY ENVIRONMENT
Through the MyB software platform, also traditional technologies comply with the most advanced IoT standards. The organised data generated by MyB applications are easy to integrate into the different company's information management systems.

QUICK SUPPORT AND REDUCED DIAGNOSTIC TIME
The real-time monitoring of machine failures allows Belotti Service to give immediate support for the resolution of any problems.

EASE OF USE AND INTEGRATION
All applications are installed in a few steps and can be managed by a simple dashboard. In addition, the suite is compatible with the main international IoT protocols (MT-Connect, UMATI, OPC/UA).

CONSTANT CONTROL OF THE SYSTEM
The collected data is always available and can be easily exported both remotely and from mobile devices such as tablet and smartphone.

HIGHER SECURITY OF THE ENTIRE SYSTEM
With MyB it is possible to anticipate faults and machine downtimes, limit human errors and optimise machine maintenance costs. In addition, all data recorded by the suite is stored in-house, in the company's IT system (no data in external cloud).

The Suite is configured to control the individual machining centre in **SingleUse** mode. On request, it is possible to set the **FactorySupervisor** mode, to extend the control up to 32 machines simultaneously, even with different NCs, through a central server PC.

MyB Suite is always supplied with **a mini-PC** (fanless with solid-state hard drive), built-in the machine's framework, and includes an event notification system and the **bCare services: Teleservice, Advanced Log** and **bMaintenance.**

Event notification
The instant notifications **inform about the operating and maintenance status of each machine**, facilitating **constant and safe monitoring while helping to increase productivity.** They are always saved by the system (Logger / Event History) and it is possible to configure and schedule them according to specific needs. They are displayed as pop-up messages on screen which can also generate an email or SMS (optional).

The system notifies main events such as:

- machine power off
- program start/end
- M-code/customer's signal
- machine collision (only available with the app **bCollisionDetect**)
- scheduled maintenance reminder/request.
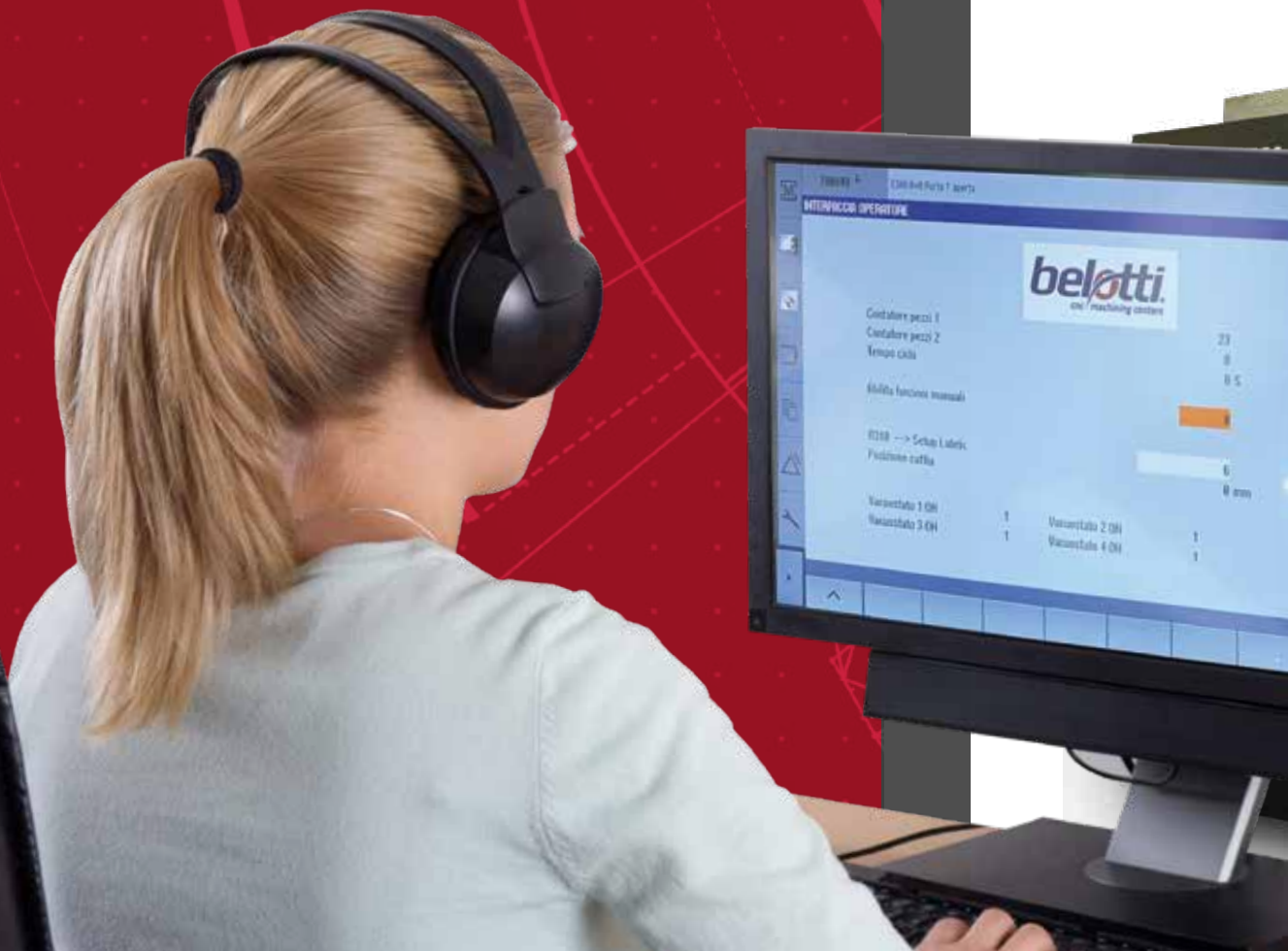
bCare

bCare module, developed for direct communication and support from the Belotti Service and a preventive maintenance for each machine, consists of three integrated applications:

1. TeleService

Always active, this service allows **immediate connection and support by a Belotti technician**, who can quickly implement the necessary actions to solve any problems, reducing downtime.

bCare

2. Advanced Log

This application stores events and machine alarms in a retentive database, also available after a shutdown.

The event history visualisation **facilitates the analysis and the subsequent optimization of the performances.**

The system can track the latest:
- 500 tool changes
- 1000 programs
- 500 origin changes
- 1000 events
- 10000 alarms
- 10000 actions on CNC (mode change, potentiometer, etc.).

It is possible to consult the LOG at any time, both on board the machine and offline.

Moreover, **service files are automatically generated** and available to Belotti technicians, to make any kind of support more efficient.
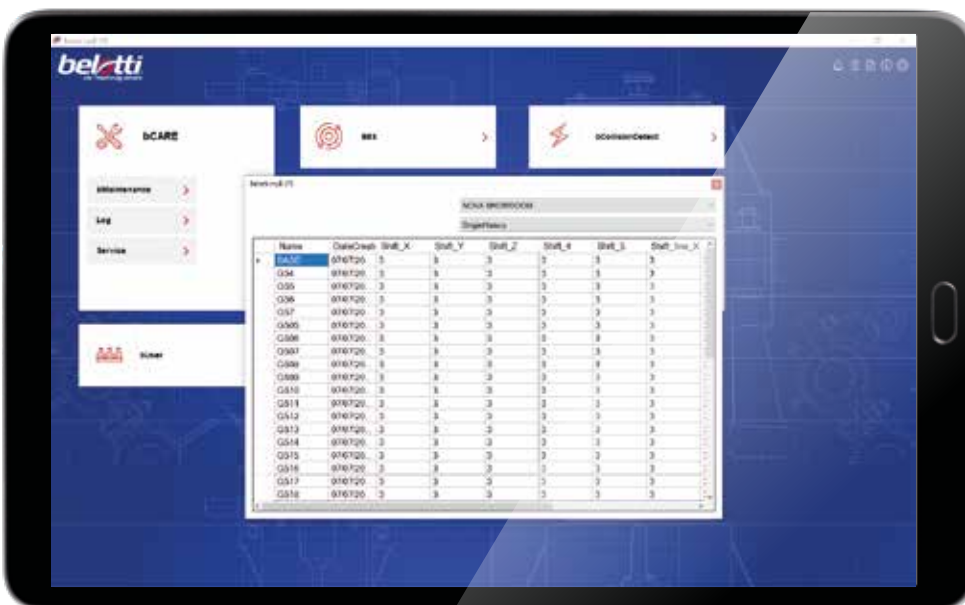
3. bMaintenance

This service is useful for managing scheduled maintenance in the best possible way, in order **to achieve the maximum lifetime performances of the machining system**. Through constant monitoring of the working centers, this app notifies the operator about the maintenance actions recommended or to be carried out:

- ordinary maintenance (checks, cleaning, etc.)
- extraordinary maintenance
- geometric checks.

Notifications are shared via on-screen alerts and via e-mail reminders (the most important ones). The operator can choose to perform, postpone or skip – if not strictly necessary – the maintenance actions suggested by the system.

An archive ("History") keeps track of all maintenance events carried out, so that the wear status of single components is always available and all information can be integrated into an **efficient management of the machine's components, warranties and spare parts.**
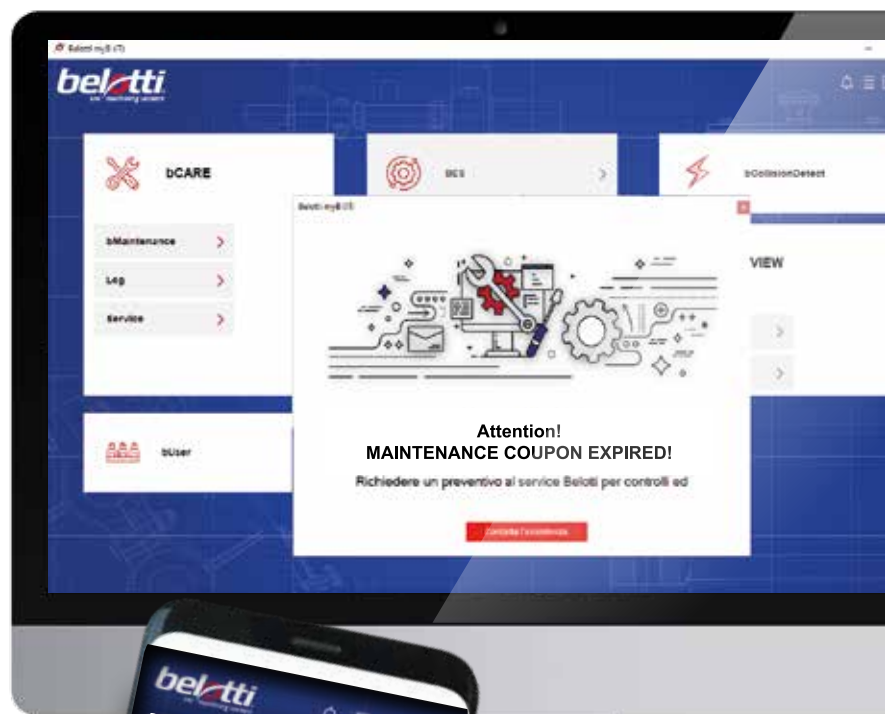
BES
Belotti Equipment Supervisor

BES works as an **Advanced Counter and Supervisor** of machine productivity in **smart factories and Industry 4.0 environments (Performance Overall equipment effectiveness, OEE)**. The operational status of each CNC center logged-in the network is analysed on different time spans (shift, week, month). **Real-time monitoring and extraction of the relevant productivity data** (SQL database and CSV report file) are **simple and immediate** as possible **from several devices (PC, tablet, smartphone)**.

In addition to the Event Notification and Advanced Log services, BES allows to monitor and show into detail:

- **MACHINE STATUS:** (in operation, stop, cycle, switched off) through an easy-to-use dashboard;

- **RUNNING PROGRAM:** analysis and list of data on duration, number and type of executions, etc.;

- **PRODUCTIVITY:** through a special **tachometer** that measures the percentage of production capacity on different timings and regarding the number of machined pieces:
  - daily percentage of machine work
  - hourly percentage of machine work
  - number of pieces produced.
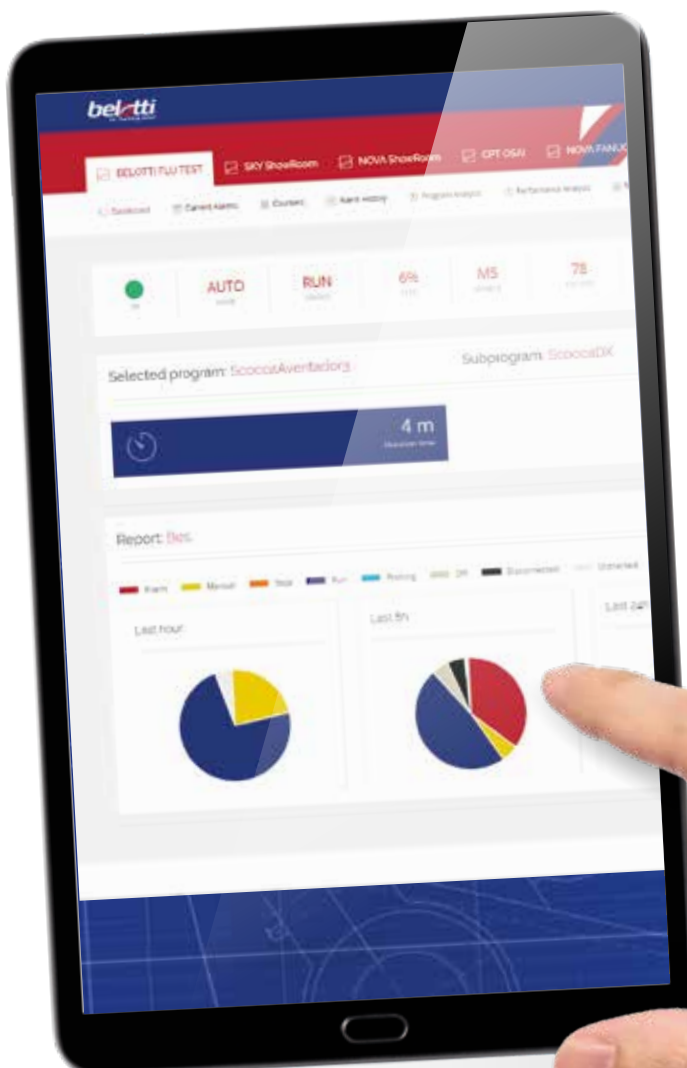
bOpen

With the optional add-on **OEM Variables**, developed for BES and bOpen modules, it is **possible to add up to 5 OEM variables to be monitored in particular**, such as part numbers, batches, etc. The performance of these variables are available real time, recorded and included in productivity reports.

The entire BES system is designed in order to easily integrate the aggregated data into the company's management systems.

This software interconnects the machinery and the factory environment: by creating a series of web services, one or more machines integrates within the specific communication system of the plant. The organized recovery of process information coming from the connected devices follows international-standard protocols such as:

- **MT-Connect**
- **UMATI**
- **OPC-UA**

Thanks to this solution, even retrofit machines can communicate with the most technologically advanced standards of the factory. Moreover, in case of special needs, the response servers of each protocol can be modified through specific bOpen customizations.

bCollisionDetect

This module **significantly reduces the damages caused by collisions and helps to prevent them in the future**. For collision avoidance and detection, the software interacts with on-board sensors (accelerometer), which are also able to intercept unbalanced tools and potentially dangerous processes by measuring the level of head vibrations. In case of collision, the system performs a forced shutdown of the machine, records the event and notifies it through pop-up video messages and e-mails. A careful analysis of the event log will be useful to better understand the causes of a collision, in order to avoid it in the future.

The data detected in real time are:
- time of the event
- tool dimensional data
- running program
- program line
- active tool
- active origin
- axes position.

Temperature, Average
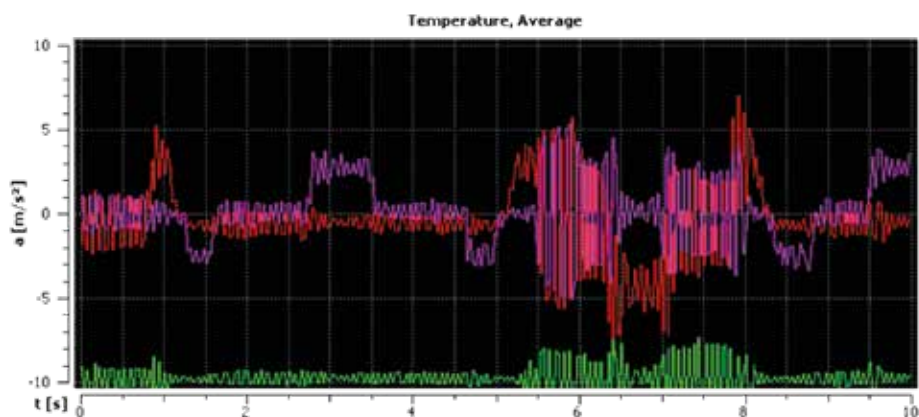
Barcode

BARCODE app selects and automatically activates the machining programs by simply reading their own barcode. Adding this module in the suite leads to **greater efficiency, by speeding up the program activation and equipment changeover processes and by significantly decreasing the incidence of operator errors.**
To recall the desired or necessary program, there are **three main operating modes**:

1. *program name:* by scanning the program name;
2. *program code:* by scanning the alphanumeric code associated to the program;
3. *program check:* by scanning the alphanumeric code of the program and a code of the template jig/work-piece fixture, which have to be both associated after an internal database check.

All the operating modes allow to:
- **set the precise number of pieces to produce**, at the end of which the machine will notify the end of production;
- **manage both mono and dual-zone machines, guaranteeing operational safety at the same time**. While the machining centre is working, changes are only possible in the not-operative zone and any changes to the active program are blocked;
- **prevent and reduce errors**, as the operator can view both an image of the workpiece positioned in the machine and the first lines of the running program.

bView
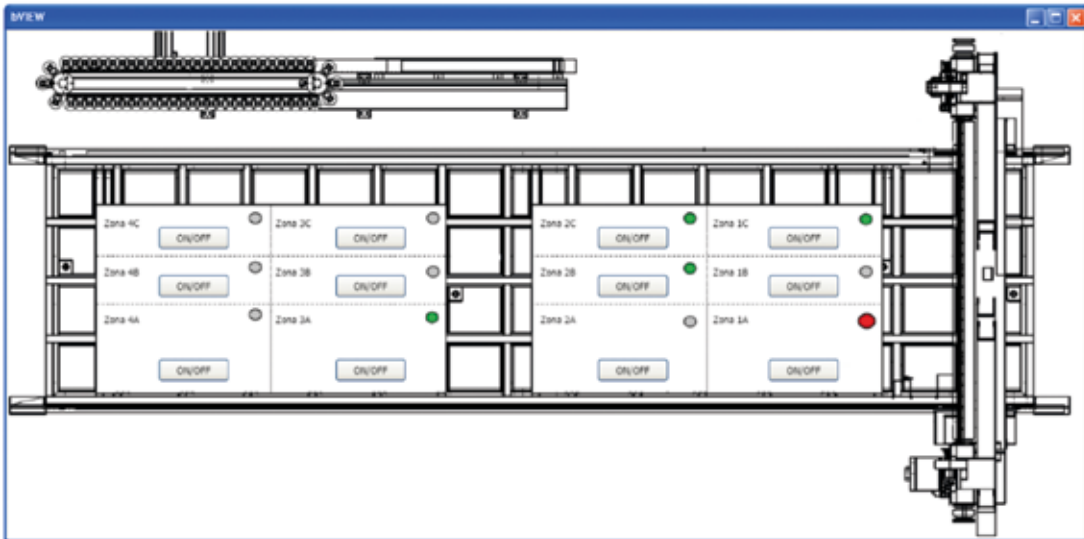
This module allows to **have an interface developed** *ad hoc* and it's particularly suitable **for all complex projects in which custom-made solutions integrate advanced features into the machinery**. Directly from the on board monitor of the CNC center, the operator can view, control and manage machine and equipment automations, particular and complex vacuum tables, special tools, etc.

bUser

Operators

1 **2** **3**
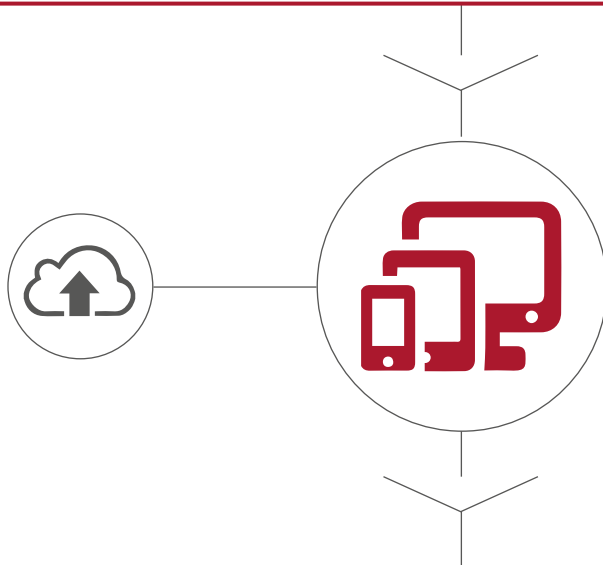
This software package is designed for the operator machine management, which makes it easier to monitor the performances of the factory team, as it identifies the operator working on each machine clearly and in real time. The automatic association is possible once the operator has logged-in at the beginning of his shift or working on a specific machine.

Operator-Machine Interaction
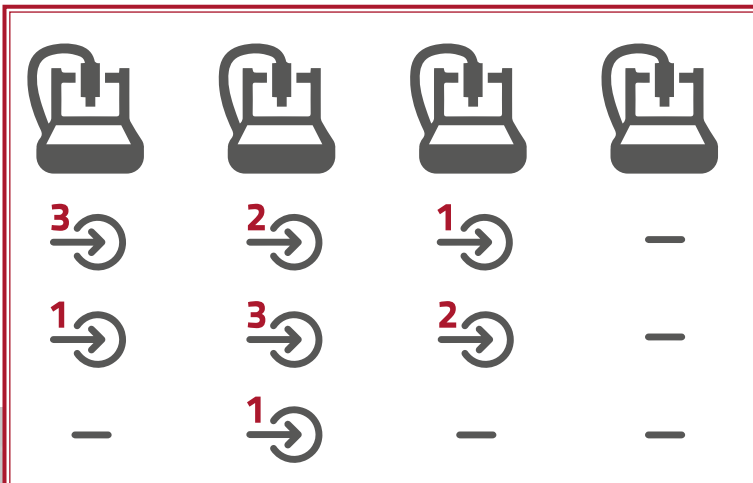
3	**2**	**1**	—	9:00 a.m. - 11:00 a.m.
1	**3**	**2**	—	11:00 a.m. - 1:00 p.m.
—	**1**	—	—	1:00 p.m. - 3:00 p.m.

Working hours

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