



Global reach, local support

ABB's global SIU organization provides local support to robots across the world

RAJESHWAR DATTA – Remote monitoring and analysis of industrial equipment is an ideal way to ensure that the very best expertise is deployed to keep customer installations running smoothly. Remote solutions generally have three main elements: the technology to collect data at the customer's site and deliver it to a central location; a portal to select and display meaningful information to service engineers; and a back-end organization that can intelligently interpret and act on the site data. Traditionally, this last element has been provided by an entity local to the customer. However, increasing trends toward

cooperation across a shrinking cyber world have brought into focus a much better solution. This innovative approach gathers the very best resources together in one global organization to serve multiple countries. Thus, this dedicated remote monitoring and analysis organization, can develop and share specialized experience, as well as strategies and technologies, across countries. All this delivers timely, cost effective and best quality support, thereby benefitting both end customers and ABB. What is involved in setting up such a global organization and integrating it smoothly with the business?



Local ABB organizations have remote monitoring personnel, but in some cases it may be better to create one worldwide, specialized organization.

Remote monitoring and analysis services are becoming more popular and are likely to be a dominant way of providing service in the future. ABB has many businesses that already feature such services and others that foresee a heavy dependence on them in the future. Increasingly, the complexity of remotely collected data is such that it requires specially trained and dedicated personnel to interpret and act on it. Up until now, local ABB organizations have tended to supply such personnel, but in some cases it may be better to create one specialized organization to support the worldwide business.

Developing such an organization “off-line”, building its resource competence, equipping it with proper tools, defining its working processes and deliverables, positioning it appropriately in the global structure, and, finally, “sliding” it into daily operation with minimum disruption and maximum gain, poses unique challenges. However, just such an exer-

cise for ABB’s global robotics business was recently carried out with great success.

Remote service

Remote services suit ABB’s robotics business particularly well because cost of downtime is particularly high in many cases. Until now, remote solutions depended on local resources. However, this mode of delivery was not optimal because skilled resources were sometimes lacking locally. Also, the remote data usually triggered reactive rather than proactive support.

In 2009, ABB set up a service intelligence unit (SIU) – a hub of expert resources – for its robotics business. The goal was to smoothly integrate this new global level-three support entity into the existing structure of the ABB support organization. Traditionally, product support is structured in four levels and level three is a regional support resource:

- Level one: the local front-end traveling service engineering resources

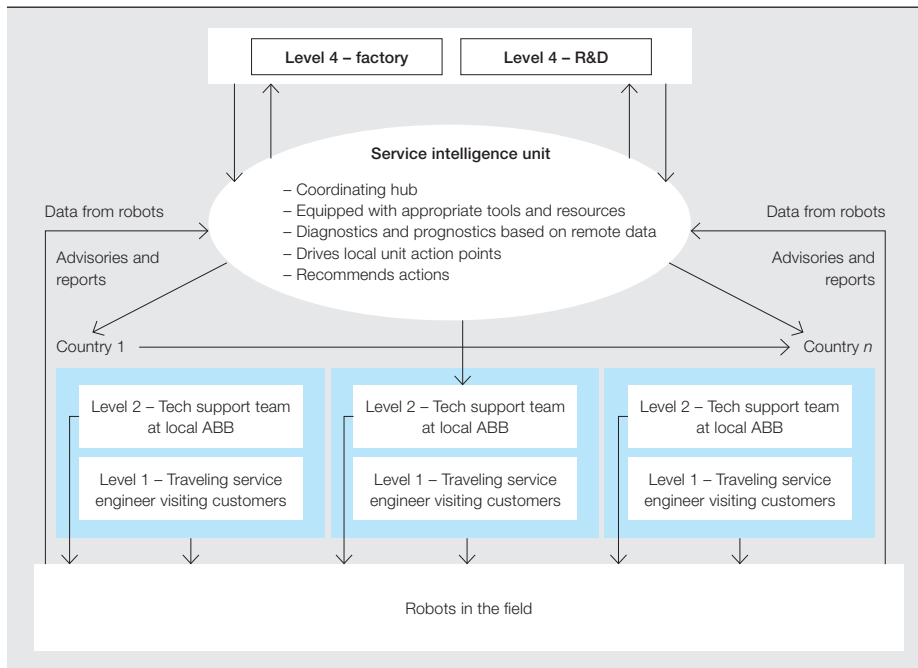
- Level two: local back-office support to help Level one if needed.
- Level three: region or supranational resources
- Level four: support from the factory or the relevant R&D organization

The customers of this new SIU, then, are the local ABB robotics business representatives, especially level two, and possibly level one, engineers. They use the SIU to deliver improved remote service to their end customers.

Operationally, setting up the SIU involved putting in place expert resources, processes and tools, as well as building personnel competence, and establishing SIU interfaces with the workflows of the local organizations → 1.

Title picture

ABB’s robotics business successfully established a remote service organization. This provided not only a perfect support tool for the robotics business, but also gave an ideal template for other ABB business areas and a launchpad for future expansion of service offerings.



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In the short term, the SIU’s mission is to optimally support existing remote service agreements. In the long term, the mission is to exploit the potential of remote data in structuring and offering new services. Additionally, the door has been left open for future optimization of the service delivery model.

Specifically, the SIU’s goals are to:

- Maximize customer satisfaction, reflected in renewed service contracts.
- Support countries lacking adequate resources.
- Exploit prognostic intelligence to target 24/7 customer uptime.
- Reduce turnaround time: adopt aggressive, proactive posture to alarms (response time less than 1 hour now and 3 minutes in the future).

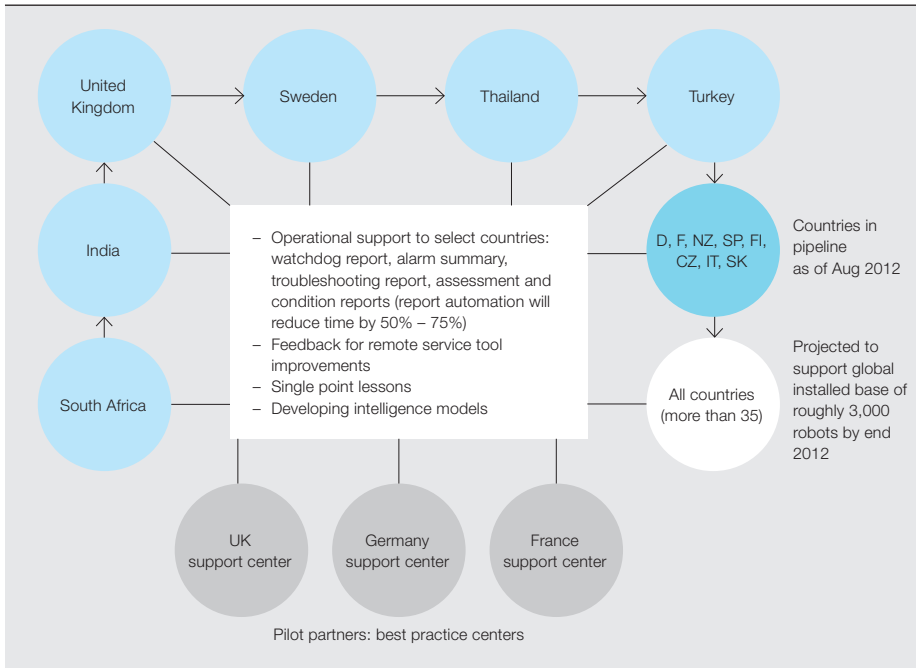
Results

Since November 2009, the SIU has grown in strength from 1 to 9 people and still growing. The roadmap included a “learning by doing” pilot run involving collaboration with local units that had the acknowledged best practice in robotics services → 2. The SIU opened its doors as an operational entity in November 2010. Since then it has improved upon the existing best practices and has striven to enhance the quality of its deliverables. A key SIU service is to coach relevant countries on these best practices. As of September 2012, the SIU is supporting roughly 1,200 robots in seven countries with another eight countries poised to engage shortly. The SIU expects that by the end of 2012, it would be supporting much of the global installed base of remote-service-equipped robots. This could easily include 3,000 robots in more than 35 countries. There could be multiple shifts in the future.

The SIU menu of services to local ABB units comprises the following offerings:

- Troubleshooting reports: advisories that help local service engineers diagnose and troubleshoot alarms
- Watchdog reports: management monitoring and control tool that allows local management to monitor the efficiency and effectiveness of remote service delivery.
- Advanced condition reports: instruments of customer relationship

2 SIU competency building, scope of activities, scale-up strategy, history and status



management that provide periodic summaries of robot performance for end customers. These enable regular customer interactions and their tailored observations and recommendations help customers best utilize their assets.

- Standard support: alarm monitoring and critical alarm screening (without troubleshooting advise) for local units to optimally focus resources.

The SIU seeks continually to improve its menu of services. For existing support agreements this means constantly seeking to decrease mean time to repair (MTTR) and increase mean time between failures (MTBF). For future business it means developing predictive services selling “maximum uptime” not “minimum downtime.” To develop the ability to offer such predictive services, the SIU engages in innovative research to extract predictive service intelligence from remotely collected data.

Impact

The SIU has now become an “intelligent” competence hub, staffed by trained and field-experienced service engineers who are especially skilled in interpreting and responding to data collected from robots worldwide. It generates various kinds of timely advisories and reports, with prompt and proactive recommendations and assessments. Global demand for SIU service is growing.

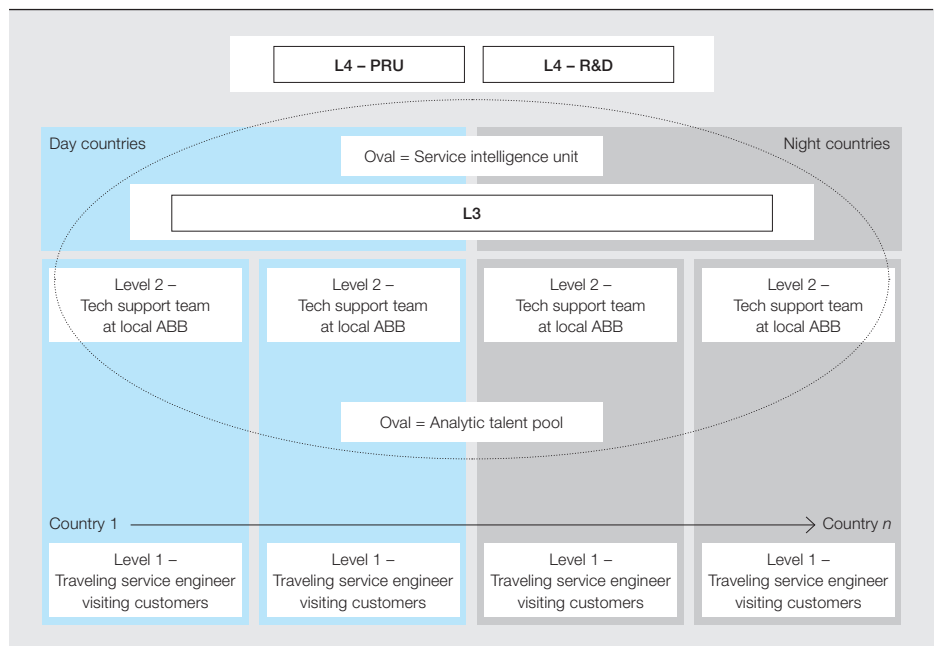
Knowledge generation and knowledge management are key SIU activities. As part of knowledge generation, the SIU engages in research to develop service intelligence that is used to make recommendations and assessments. Collaborative research with top-flight internal ABB resources, such as the global corporate research organizations, and external resources, means the most progressive practices are implemented. Predictive fault models based on remote data are a good example of output from this research. Such predictive capabilities can open doors for new revenue-generating service agreements. Prognostics services can deliver maximum uptime by proactively avoiding problems rather than minimum downtime by reacting to them.

In addition to developing predictive models, the SIU creates single point lessons (SPLs) as part of knowledge generation. SPLs are a “one-stop shop” for complete information on diagnosing and troubleshooting commonly occurring alarms. Both the “outside-in” field experience of SIU engineers and “inside-out” perspective of a system architect come together to make these SPLs very comprehensive indeed. These innovative exercises constantly push the boundaries of data interpretation. The outcome is maximized uptime for customers through effective troubleshooting and timely preventive maintenance.

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3 A geographically spread virtual SIU allows “day” engineers to help “night” engineers by routing information through a coordination center.



The SIU engages in knowledge management to efficiently organize and retrieve service intelligence. Research shows that up to 50 percent of the time spent on preparing for a service job goes toward searching documents and databases. The SIU has explored and engaged with leading semantic technologies and knowledge management (KM) vendors. A proof of concept mock-up of a KM tool is almost ready. When deployed, it will make all pertinent information needed to diagnose and troubleshoot a problem available at the fingertips of service engineers (remote and non-remote) worldwide. This will drastically cut service resolution time and help move toward the 3 min response-time vision.

The system will speedily and accurately scan historical cases for tips on solving the current problem. It will search service advisories, internal ABB library material and other sources for valuable insights and other relevant documented information.

Success of the robotics SIU has attracted attention from other ABB business areas, such as low-voltage drives, medium-voltage drives, motors and generators, low-voltage products and fast chargers.

Customer contact and CRM

Local ABB units interpret the technical SIU reports and contact their customers with advisories and recommendations. Thus, customers benefit from personal contact

with a local ABB service professional who has the benefit of expert SIU insights. This “local ABB face” makes for effective customer relationship management.

That local service engineers interpret SIU recommendations, instead of simply forwarding SIU reports to customers, means their skills are kept current. The closing of alarms and the service case itself remain a local responsibility too. These practices ensure that local entities stay actively involved in the service deliv-

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ery and maintain their service delivery obligations and competence.

This modus operandi allows the SIU to bolster those local units genuinely needing help, while fulfilling the ABB philosophy that “support is a local responsibility.”

Organization start-up basics

Although there is significant learning-by-doing in such an organization development exercise, some basics are obvious.

These include the business case for establishing the new organization, its positioning in the global structure (ie level two or level three role), its customers (internal or external), the funding model, around the clock versus part-time operation, and whether the SIU is a physical center with all resources colocated or a virtual center with engineers globally dispersed but working together under one SIU umbrella.

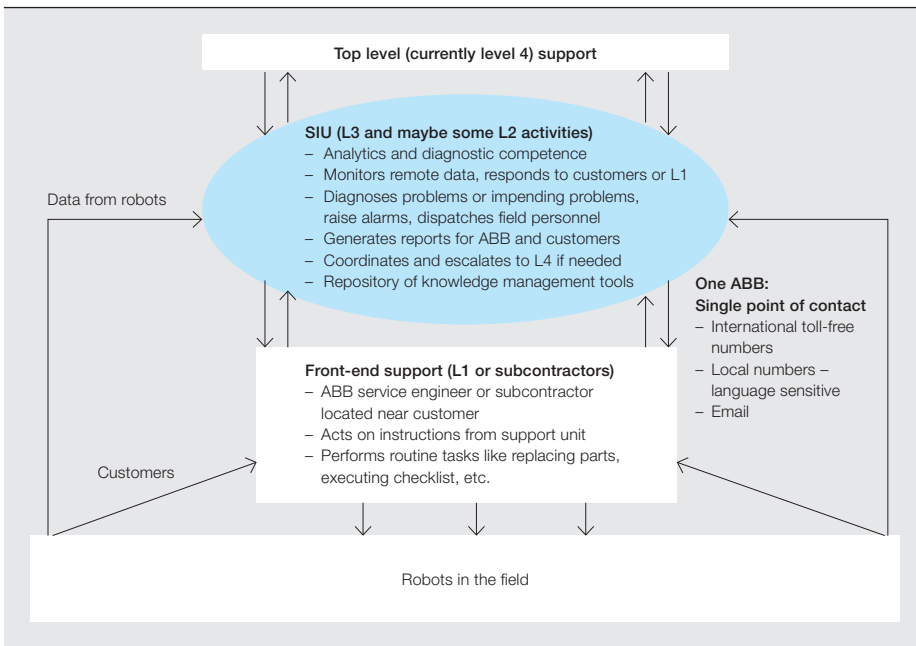
Following the robotics example, businesses can minimize risk of disruption by spinning off such business incubator exercises. Robotics engaged a customer-service-focused group in ABB’s global corporate research organization in India for setting up the SIU. This group perfected the new

operational (SIU) model offline prior to final deployment.

Future scope

- The SIU scope will expand in many areas:
- Around the clock operation in stages
 - More automation in report writing, key performance indicator (KPI) tracking and workflow.
 - Possible integration with local units via a common administration tool (eg ticketing).

4 A possible future virtual level two and three SIU as a nucleus of a streamlined “One ABB” support delivery model



- Attainment of a case turnaround time of 3 minutes by using sophisticated knowledge management systems hosted and maintained in the SIU (Bangalore).
- Better assessment of end-customer satisfaction.
- Possible evolution of the current physical SIU nucleus to a large “virtual SIU” embracing engineers located in multiple countries. This hub would enact the “One ABB” support delivery model, accessible globally to all customers as a single point of contact for remote and non-remote cases. It would:
 - Enable engineers in “day” countries to help attend cases in “night” countries by routing information through the current physical SIU nucleus, which would act as a coordination center. This nucleus could also provide additional expertise in some cases. All this would streamline support delivery by reducing escalation layers → 3–4.

Vision: “One ABB” in action

Creating a single global organization dedicated to delivering remote services and staffed by experts is potentially a perfect solution for many ABB businesses. The experience gained from setting up the ABB robotics SIU will be invaluable when setting up similar organizations for other business units. In the future, one center of competence could evolve by exploiting the synergies

between such organizations. It could develop, share, and deliver best practices, processes, and approaches to structuring business offerings and service agreements, especially around remote information. Common technologies and tools bring down costs across a large user base. Such a unified center of competence: a service intelligence development and delivery hub (for both remote and non-remote support), would be a fine example of ‘One ABB’.

As part of knowledge generation, the SIU engages in research to develop service intelligence that is used to make recommendations and assessments.

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