Experience

SUCCESS FACTORS FOR INTERNATIONAL SOFTWARE PROJECTS

ERNI
enables & delivers

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On one hand, there is a shortage of skilled professionals in Germany and Switzerland, and on the other hand, there are projects that involve multiple companies and frequently cross-national boundaries; software development has long since adopted international and intercultural dimensions. Correctly deploying onsite, nearshore and offshore resources and ensuring quality is a challenge with increasing complexity, but one that also offers significant potential. Customers must at all times be able to rely on the fact that a technology consultancy applies the same corporate culture and the same values across international locations.

Resources can only be used optimally when people network and share knowledge. This requires the appropriate structures to be in place, not only in the company but also beyond its borders. The added value global account management can offer in this regard is the subject of the first article.

Having a global presence across a diversity of regions allows proximity to customers at their locations and to growth markets. It also provides the ability to fully exploit the benefits provided by each location so the best combination of resources, skills and framework conditions for specific customer needs can be selected. In the second article, you can learn why evaluating the correct site not only involves «hard» location factors, but also concerns choosing the correct partner.

Cooperating internationally to coordinate projects and teams spread around the globe is a fine art. The third article shows how methodologies can be optimally applied to software projects.

The fourth contribution rounds off the topic of international cooperation with a specific example: Barcelona is very attractive as a software development location. We ask the question: «Why, if this is the case, is it still important to operate across a global network?» We would be delighted if you can draw valuable ideas from the articles and our experiences.

Best wishes,
Thomas Meyer

Now you can also read all of our articles online!
We will gladly answer your open questions sent to: **info@erni.ch**

THE RIGHT LEVERAGE FOR INTERNATIONAL SUCCESS

International account management creates competitive advantages for globally active companies.

If a company wants to assert its position within the context of increasing globalisation, global account management must become a key factor for success not only for providers but also for customers. Transnational cooperation requires a holistic view, structured knowledge transfer and a partner that takes a strategic and long-term approach to these challenges.

BY PETER ZUBER AND THOMAS DANNER

In the globalised world, markets are growing increasingly close together. A prime example: the European Single Market. At the same time, the number of internationally operating companies is constantly increasing. Both phenomena mean that projects increasingly require transnational coordination. Correspondingly, these internationally oriented companies also expect the services offered by their partners to be equally as holistic and geographically widespread. In the face of these requirements, account management will have to take on a new role: Global account management, which is becoming a decisive success factor for customer relationship management. In this context, account management is now becoming less structured in most companies. However, it can only provide added value if it drives value creation and innovation as a cross-functional, transnational process.

From a market perspective, global companies are increasingly being confronted with changes to framework conditions, which has consequences on how they need to be organised internally in order to be able to react quickly and appropriately. Driven by information technology, technological innovations are further accelerating product cycles. Globalisation in general, as well as evolving markets and changes in customer behaviour and, consequently, the way in which purchase decisions are made or sales channels are selected all contribute to this acceleration. All companies are now surrounded by these competitive conditions and are constantly being pushed to come up with

new innovations. Success comes to those who manage to adapt at the right time and therefore move closer to the customer. This requires a change in perspective and a new form of cooperation: Companies must find out more about their customers, their markets and the customers of their customers. Only by basing product developments on expanded knowledge can they make their customers the focus of their business activities.

This development also has an impact on the other end of the value chain, namely on the relationship between companies and their suppliers. Large companies are focusing on fewer partners, resulting in closer cooperation. This is a great opportunity not only to ride the wave of change but also to generate growth together with the customer. Key account management plays a crucial role in this respect because it contributes to the processes and methods that help to anticipate customer needs and to meet those needs in a shorter span of time with improved services.

A long-term, structured and committed approach is the core element of all key account management, especially at times when the complexity and speed involved in value creation processes are increasing rather than decreasing. Taken at face value, this distinguishes partners from mere suppliers; partners are so close to the market of their customers that they can provide ideas for innovation in advance because they know the trends and players shaping the respective market. Partners are not driven by closing the next sale, but rather by long-term customer satisfaction, which results in mutual loyalty

«A strategic partner thinking long-term should not only provide qualified development capacities or skills, but also ensure that clients can take advantage of the full potential of their allocated resources.»

FIG. 1: SETUP OF INTERNATIONAL KEY ACCOUNT MANAGEMENT

Local ERNI
Account Manager

Local ERNI
Account Manager

Local ERNI
Account Manager

CLIENT
BUSINESS UNIT
NORTH AMERICA

CLIENT
BUSINESS UNIT
EUROPE

CLIENT
BUSINESS UNIT
ASIA

LEGEND:

Client does not communicate internationally
across all project levels

ERNI enables an international dialogue and
knowledge transfer at a project level
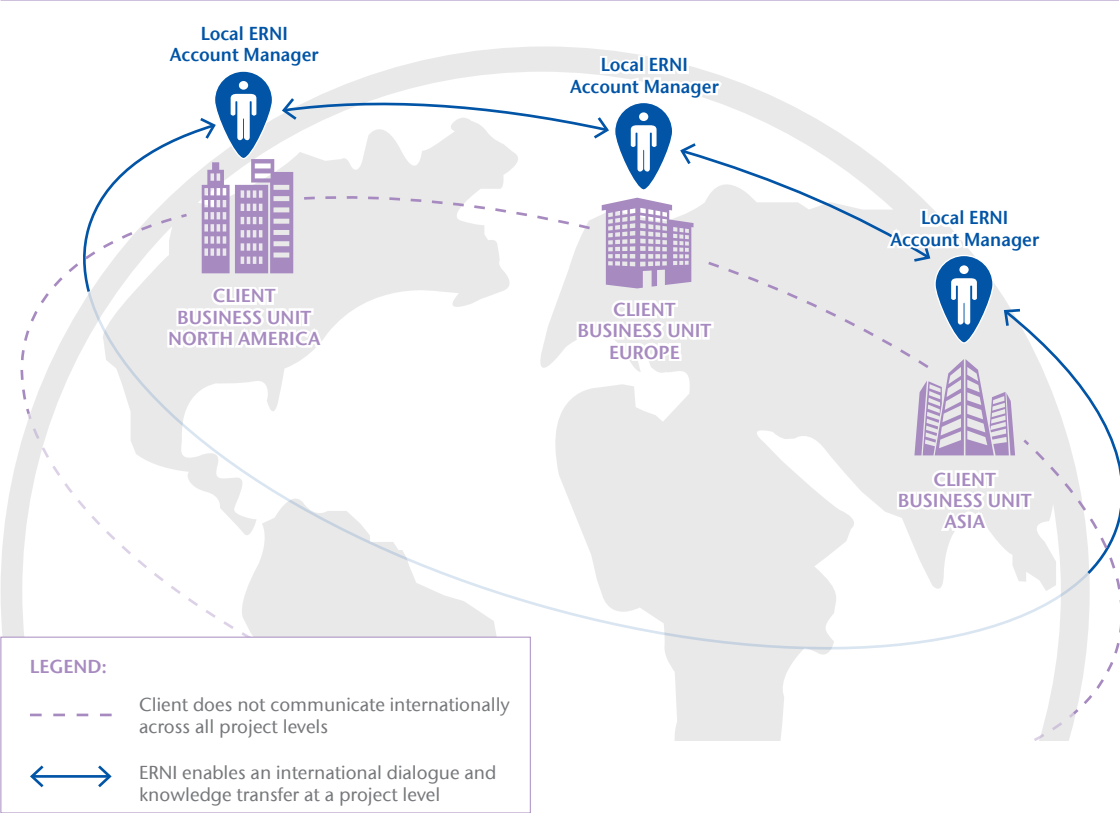
and ultimately mutual business success. In this sense, key account management acts as a catalyst, ensuring that internal processes are initiated so that an organisation remains capable of learning, exploits synergies and grows successfully.

In the view of many customers, the desire to create as much value as possible in-house in order to gain expertise is currently still dominating. This can lead to success — but only if it does not cause the company to lose speed in the market with regard to its product development and run the risk of falling behind the competition. Time to market is a critical success factor in global competition!

Coordinating work is a key element in reducing time to market in product development. Thus, good key account management is characterised by the fact that it is capable of optimally synchronising these processes, therefore optimally exploiting the customer's potential — both internally and with the help of external partners. Firstly, with some external service providers, good key account management enables the processes of a manageable project *(pilot phase)* to be adapted so that the outsourced work runs alongside and in synch with internal development. Successful cooperation in this phase leads to trust, which forms the basis for a long-term customer-partner relationship. Of course, qualifications must clearly define who is responsible for what and to what extent. It is also necessary to check what spectrum service providers can cover overall. Are they capable of growing together with the company? What industry knowledge do they bring? What functional expertise can they contribute?

The capacity to learn within this environment is based on knowledge transfer.

This aspect is also crucial for cooperation between customers and partners because knowledge is increasingly becoming a valuable success factor that results in competitive advantages. As an interface for the exchange and utilisation of available knowledge, the right support for key customers can play a profitable role by taking on a more advisory role than in conventional sales.

Technology consultants, for example, are assessed on the basis of the added value that they are able to deliver for their customers. The extra mile that they need to cover in order to achieve this lies in:

- maintaining the organisation's capacity to gather domain expertise

- knowledge of market trends and the business activity of customers in a market, especially where tailored and individual products and services are concerned

- the network that they build up in and outside of the company, into which all other key account managers must be brought together at the global level

- specialised knowledge that they can offer the customer

- the management of resources and skills that they can offer on the basis of experiences from similar projects or to which they have access

Always acting firstly in the interest of the customer means, first and foremost, providing the customer with competitive advantages. Besides an institutionalised, comprehensive organisational system, the involvement of company management,

FIG. 2: **DEVELOPMENT OF CUSTOMER RELATIONSHIP**

MATURITY IN COLLABORATION WITH THE CLIENT

high

NETWORKING — Following a joint vision

PARTNERSHIP — Taking on responsibility for customer services

RELATIONSHIP — Customer centricity as a business model

medium

COMMITMENT — Individual customer solutions for identified problems

CONSULTING — Identification of customer needs

low

SUPPORT — Listening to the client

ISSUE MANAGEENT — Customer interaction

t

DEVELOPMENT OF COLLABORATION WITH THE CLIENT

personal and professional expertise, structured knowledge exchange and a correspondingly conducive corporate culture are also required in order to achieve this.

Account management is more than sales: Based on a strategic and long-term approach, it deals with creating additional benefits by drawing on and using synergies from available knowledge. The flow of information must be ensured and a strong network of contacts must be maintained so that leverage can be correctly applied. This is the only way in which key account management can effectively deal with the complexity involved in the internal and cross-company network of knowledge and relationships, and strike a balance between various interests. Consequently, it is also in the interest of the customer to involve account managers in planning, decisions and strategies and to maintain a partnership that goes far beyond conventional procurement.
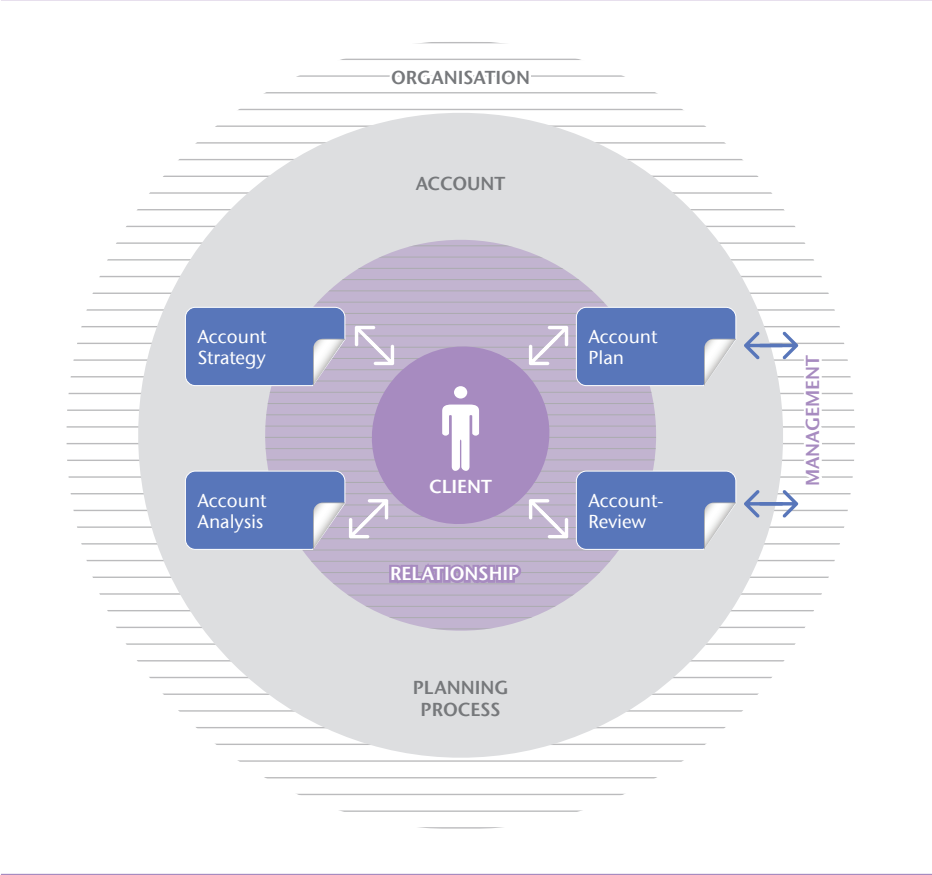
Example
GLOBAL ACCOUNT MANAGEMENT WITH SPECIFIC ADDED VALUE

A service provider in building automation is registering strong growth, in particular at the international level. Within each of the various national organisations, the company collaborates locally with a technology consultant who has good knowledge of the market, understands the requirements of customers and prioritises the long-term success of customers over short-term intentions of making a profit. So that the flow of information and the exchange of knowledge from the international network can be ensured for the customer, the consultancy company appoints a global account manager who

coordinates the cooperation between the various national subsidiaries. Since the technology consultant is aware of the challenges that disruptive technologies, new market trends and increasing customer expectations pose for the company, the first priority for this global customer service is to promptly recognise trends at one site that may also be relevant for other countries. The global account manager therefore initiates meetings with the contacts from all national subsidiaries, in which a global overview of ongoing and scheduled projects is created and synergies that are not yet even on the customer's radar are explored.

In a specific case, it emerges that two national subsidiaries are working on projects that complement each other very well and could result in greater benefits for the whole company if they are restructured correctly from the beginning. A cloud-based platform that centrally displays company-specific offers is being managed at the customer's head office. In turn, one of the national subsidiaries is developing an application that will further facilitate the daily business of its customers. The two projects overlap insofar as the basic functionalities *(such as those for document management)* required in both cases. Thanks to regular exchanges, the customer advisors in both national subsidiaries and the global account manager are aware of this and recognise the potential of synchronising the two projects to the benefit of the customer. The two teams are brought together to produce a joint roadmap as to how an integrated approach can be taken to both projects. This ensures that the design and architecture of both projects are defined before any decisions that have already been made lead to duplications or, in the worst case,

ORGANISATION

ACCOUNT

Account
Strategy

Account
Plan

CLIENT

Account
Analysis

Account-
Review

RELATIONSHIP

MANAGEMENT

PLANNING
PROCESS

«Global account management is active intercultural relationship management, based on open communication and a corporate culture that promotes partnerships and a focus on the long term.»

to incompatibilities and, therefore, high costs during the subsequent integration.

Example
SUCCESSFUL GLOBAL POSITIONING

An internationally established pharmaceutical company has various business units that are developing and marketing new products. These units are supported by an internal service department which is to provide them with centralised software development services. However, the internationally dispersed business units are also free to purchase services of this type themselves in the local markets of the individual countries. The service organisation is faced with the challenge of constantly reminding its customers *(who, despite being internal, are free to make their own choices)* of its existence, making them aware of the range of services and building trust on the basis that it can deliver on schedule, within budget and in line with the market just as well as external suppliers. The consultancy service provider, who is involved in both the business units and the support department, faces the double-edged task of helping the support department to set up «self-marketing» at the global level, as well as gathering knowledge from its own global customer service — helping the customer to achieve synergies. The support department gathers methods, knowledge and tools from this collaboration in order to position itself globally so that its services, skills and other technical knowledge provide the target group with the greatest possible benefits. Furthermore, the consultant organises a regular briefing at the management level, in which weak areas in the individual markets are discussed, trends are consolidated and

comprehensive solutions are developed. Subsequently, global guidelines are drawn up to help the individual national subsidiaries to synchronise with each other. Centralised coordination accelerates processes and significantly increases quality. Thanks to these efforts, the consultant has managed to create added value for all stakeholders involved by exploiting untapped potential.

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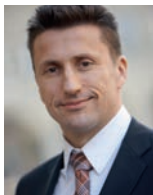
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ERNI – Innovation in Process and Technology

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ON, NEAR OR OFFSHORE?

Only a partner with sites worldwide, under a single management structure can offer its customers an optimal solution.

When selecting a development site, costs are only one of the many factors. The presence of relevant industrial clusters, access to the location, cultural proximity or the availability of the required resources as well as their scalability and profile may be equally important, if not even more crucial.

BY CHRISTOPH AESCHLIMANN
AND TOMAS HUBER

Sooner or later, almost every dynamically growing company is confronted with the issue of whether it intends to offer its products or services beyond the domestic market. Internationalisation, or opening up overseas markets, can be achieved in numerous ways. As a first step, products may simply be exported and thus, setting up a presence or a sales office will suffice. If greater local knowledge is required in order to enter the market, a joint venture with an on-site partner may be appropriate. Often, internationalisation goes hand in hand with production overseas — either due to products having to satisfy other market-specific requirements and/or because the cost structures suggest relocation of the production site. The terms «onshore», «nearshore» and «offshore» have also caught on in software development when describing the relocation of programming at an increasingly greater geographic distance from the customer. «Offshore» is generally equated with «cheaper». However, when selecting the right site for software development, the hourly rate should not be the decisive factor without other potentially more important aspects being taken into account. Many countries with advantageous cost structures are not necessarily characterised by their constitutional or national stability, nor do they have legislation for the protection of intellectual property, both are traits which are far removed from European standards. Employment regulation issues such as termination periods should also be subject to thorough review. Establishing industries or whole industrial clusters in generally poorer economic regions that are sponsored by the state or the regional authorities for job creation can prove to be advantageous.

If a service provider is concerned with offering his customers the best choice among all the possible development sites, he will not avoid expanding his service centre presence from Western to Southern to Eastern Europe and beyond, to Asia. This is because every software development site has a vast range of advantages and disadvantages that can be weighed differently according to customer requirements: Is it important for the customer and his development partner to speak the same language? How experienced is the customer in dealing with other cultures? How good is the access to the site? Do time differences need to be considered? What about infrastructure and the availability of mobile and Internet-based technologies? How quickly can good specialist staff be recruited and do they actually exist in sufficient number and at the level of quality required? What entry requirements, customs or export limitations or other legal framework conditions would complicate or facilitate cross-border collaboration? If termination periods are short, this could potentially impact team stability and guaranteed knowledge transfer. If they are long, it will take time to recruit the right people and for them to reach productivity. If the customer expects a great deal of interaction, a proactive approach and critical analysis of the task, then this

«A customer's expectations for working together in a shoring model are met if the partner has proven best practices across all sites and in this way, reduces time to market and complexity.»
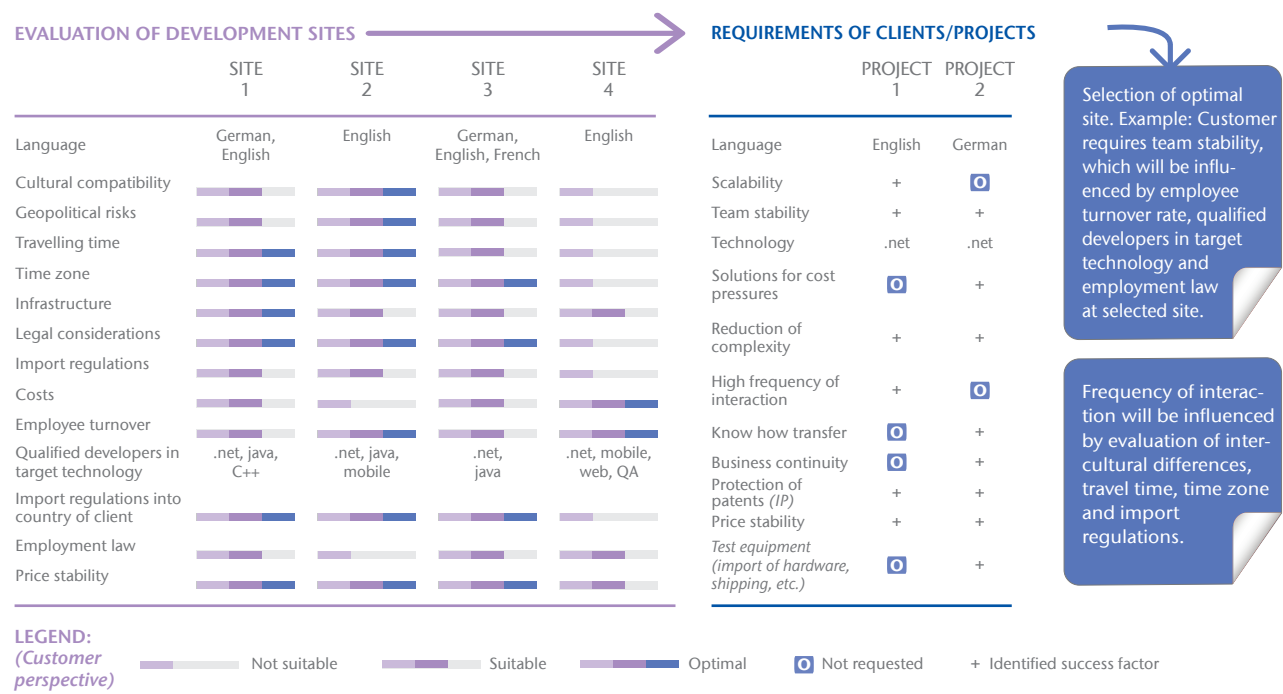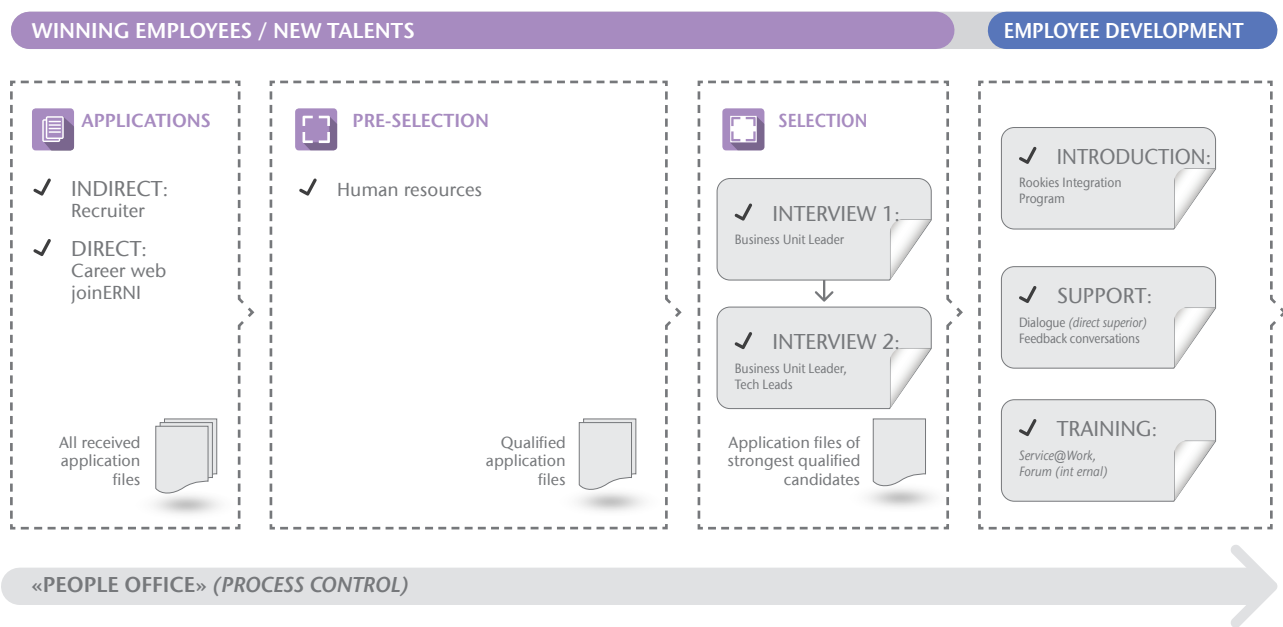
FIG. 4: SELECTION OF AN OPTIMAL DEVELOPMENT SITE

EVALUATION OF DEVELOPMENT SITES → REQUIREMENTS OF CLIENTS/PROJECTS

	SITE 1	SITE 2	SITE 3	SITE 4
Language	German, English	English	German, English, French	English
Cultural compatibility				
Geopolitical risks				
Travelling time				
Time zone				
Infrastructure				
Legal considerations				
Import regulations				
Costs				
Employee turnover				
Qualified developers in target technology	.net, java, C++	.net, java, mobile	.net, java	.net, mobile, web, QA
Import regulations into country of client				
Employment law				
Price stability				

	PROJECT 1	PROJECT 2
Language	English	German
Scalability	+	O
Team stability	+	+
Technology	.net	.net
Solutions for cost pressures	O	+
Reduction of complexity	+	+
High frequency of interaction	+	O
Know how transfer	O	+
Business continuity	O	+
Protection of patents (IP)	+	+
Price stability	+	+
Test equipment (import of hardware, shipping, etc.)	O	+

Selection of optimal site. Example: Customer requires team stability, which will be influenced by employee turnover rate, qualified developers in target technology and employment law at selected site.

Frequency of interaction will be influenced by evaluation of inter-cultural differences, travel time, time zone and import regulations.

LEGEND:
(Customer perspective)   ▬ Not suitable   ▬ Suitable   ▬ Optimal   O Not requested   + Identified success factor

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FIG. 5: PROCESS TO WIN AND DEVELOP EMPLOYEES

WINNING EMPLOYEES / NEW TALENTS   **EMPLOYEE DEVELOPMENT**

APPLICATIONS
✔ INDIRECT: Recruiter
✔ DIRECT: Career web joinERNI

All received application files

PRE-SELECTION
✔ Human resources

Qualified application files

SELECTION
✔ INTERVIEW 1: Business Unit Leader
↓
✔ INTERVIEW 2: Business Unit Leader, Tech Leads

Application files of strongest qualified candidates

✔ INTRODUCTION: Rookies Integration Program

✔ SUPPORT: Dialogue *(direct superior)* Feedback conversations

✔ TRAINING: *Service@Work, Forum (int ernal)*

«PEOPLE OFFICE» *(PROCESS CONTROL)* →

may tip the balance toward one culture or another. However, if, for example, it is a matter of mobilising manpower on a large scale — about which a European site can only dream — service centres in Asia the lead.

Taking these considerations into account, it makes sense to have a network of sites in order to be able to balance out the strengths and weaknesses of individual target countries and always create the best possible environment for the customer's concerns.

However, this only works at an optimum level if all sites are bound to the same values, and if the development process, methodology and tools are standardised. The advantages of propagating the service centres only become really apparent where different specialisations are performed in one centre or another and the same level of total quality and reliability which is expected by the customer from his partner is achieved. A consultancy service provider who applies the same benchmark to recruitment, initial and further training, knowledge transfer and employee leadership in all of his service centres is, as it were, killing two birds with one stone. In regions of the world where corporate cultures are not yet necessarily at the level we are accustomed to at home, he is an attractive employer who can benefit from increased loyalty and employee satisfaction. He is also ensuring consistent quality standards that, in extreme cases, allow relocation of activities to another country, even short-term, upon customer request, without adversely impacting adherence to budget, quality and deadlines. If team building and company morale are consistent across all sites, then cultural and

mental factors have an enriching rather than impeding effect on the working relationship. Investing in employees is equally worthwhile for every site — not least with regard to the positive impact on team stability, motivation and commitment to quality across the entire company.

Example
SHORING IS SHARING

An industrial company has had its first experience of nearshoring in development cooperation work and also intends to continue this model in the future, but is looking for a new partner better able to address sensitivities within the company. For the customer, especially in relation to «soft facts», greater openness and commitment are important, primarily with respect to the ability to communicate, interaction and a proactive approach. The newly selected consultancy which also impresses the customer with its nearshore team at another European site, albeit it with a different mind-set, soon realises that expectations do not lie in the technical area, although an entire development team, including a SCRUM master and testers, needs to be set up relatively quickly. The customer explicitly wishes to have demands made on it by the partner: to engage in dialogue with communicative specialists who at times also critically question the tasks. The agile approach contributes to this since frequent coordination as well as planning and review processes require project participants to communicate with one another. The setup is ambitiously scheduled for one month and, right from the start, it is important for the development partner that teams get

«A distributed development organization can only be achieved successfully with a combination of uniform global processes, tools, and systematic leadership and development.»

«In the delicate balance between cost pressure and complexity, it is essential that the partner can make his teams available at different sites according to specific needs.»

to know each other in person. Over the eight-month development period, such close cooperation ensues so that project staff have direct access to the customer at all times and are not «held up» through rigidly defined communication paths or other restrictions. The focus on open and straightforward communication prevents loss, filtering or distortion of information. The preferred means of communication for this are telephone, VoIP or personal contact. Four releases will be developed, each containing several sprints, and the customer will travel to the service centre for each release's completion. The partner's team is not just there to take orders, but to exercise the right of co-determination in the application architecture with top technical expertise, thereby ultimately providing the customer with one of the most modern applications in his field. A true partnership is formed in place of a traditional customer-supplier relationship. The customer benefits are twofold: The maximum number of tasks can be delegated to the service centre, thus optimising costs; at the same time, he receives numerous suggestions and proposals for improvement from «his» team, thereby increasing the quality of his application. By selecting the right site, the consultancy partner can quickly establish resources with the required technological skills, and also satisfy the customer to the extent that he not only wishes to continue working with the existing team, but also plans to set up another team.

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ERNI – Innovation in Process and Technology

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INTEGRATION OUTSIDE, MODERNISATION INSIDE

If devices and systems are to interoperate, then above all, people have to interact with one another.

Software integration that crosses borders and generations requires that technology consultancies have competent specialists used to working in an international environment. They must be able to see the benefits of their work in the bigger picture and be able to pass on knowledge both internally and externally. Rather than primarily being technology buffs, the specialists must be trained enablers of future-driven software development who have received methodical training and are good at communicating.

BY RUBEN RODRIGUEZ, FRANCESC MARTINEZ AND ZOLTAN MAGYAR

Software is not «art for art's sake»; it is not produced for the sake of the software itself — rather it must provide clear benefits. At a time when hardware is largely becoming a commodity, companies can no longer be distinguished by their components alone, instead innovation can primarily be found in the functionality of the components or in the networking of entire systems — in other words, in the software. When different devices or systems have to interact with one another, this increases the requirements for the respective interfaces, and the software necessary for this interaction becomes more complex. The complexity increases even further when interoperability has to overcome company or national boundaries.

Thus, companies that want to provide their customers around the world with smart products leverage the advantage of a development partner that already has international experience and which has access to an available network of geographically distributed and scalable shoring resources. Hence, they are in a position to address requirements concerning deadlines, budget and any specific technical or specialist matters. The partner should also have the necessary skills to set up a challenging project of this nature with the appropriate methodology, structures and processes. One very important aspect in this regard is that ultimately, it is not only the systems and applications that have to communicate with one another, but also the people who design, develop and use the products. Rather than bits and bytes, creating a common understanding requires a good sense of how the interests of various parties can balance out to the benefit of a common objective. Social and intercultural competence within the development partner's team is consequently a significant success factor.

If software systems have to be integrated beyond company boundaries, they must ultimately also be embedded in the existing in-house IT landscapes. These architectures are often historically rooted and therefore evolve in a heterogeneous manner, and often with components that in some cases are obsolete. Accordingly, the major challenge involved in integrating software systems externally, is to trigger a modernisation stimulus internally as well. At a minimum, common industry standards must be adopted and mapped in the system.

Thus, the greatest challenge is to have a future-oriented concept in mind, so that the internal architecture can be aligned step by step, with the objective being to achieve a new level of quality based on state-of-the-art technologies, simplifying maintenance and support, as well as optimising product development with regard to time-to-market. An external consultancy will select its methods based on the existing structures. In doing so, it will select methods that enable the internal employees to integrate and simultaneously expand their thinking. It will also coach and encourage them to not only communicate in programming languages but also to create an understanding of their objectives and tasks in a larger context.

«When international stakeholders are involved in a software development project, often the challenges lie not in technical or language issues, but rather in creating intercultural understanding.»

FIG. 6: SEGMENTS IN PUBLIC TRANSPORT

| SEGMENTS	ECONOMIC GOODS	COMPETITIVE ENVIRONMENT
FREIGHT TRAINS	✓ Coal ✓ Steel ✓ Building materials	✓ Traditional competition in freight traffic ✓ Competition with focus on intermodal train traffic ✓ Prices are under constant price pressure
RAILWAY CARRIAGE	✓ Chemicals ✓ Pulp and paper ✓ Automotives	✓ Focused on road traffic ✓ Complicated production processes ✓ High entry barriers/fixed costs
COMBINED TRAFFIC	✓ Finished goods ✓ Containerised goods	✓ Strong competition in road traffic ✓ Subsidized in multiple countries ✓ Freight players are involved

Example
UNLIMITED INTERACTION

A company in the medical engineering sector manufactures devices which, once at the end customer's site, have to be networked with one another or with laboratory systems from other manufacturers. To enable this interaction to work, interfaces and corresponding drivers are required that ensure that the various heterogeneous applications can communicate with one another. On the one hand, the challenge is in developing these customer-specific drivers as quickly as possible so that the systems can be operated without delay. At the same time, numerous stakeholder groups and the end customer's company have to be included in this process — from the hospital director, through to the medical and technical medical personnel, right up to national and international regulatory authorities in an environment laden with standards. A further difficult aspect is that the devices are developed, produced and used at various sites around the world, meaning that global exchange is required in some cases.

By modernising its software, the company wants to accelerate its production, sales and distribution processes, as well as further reduce time-to-market. Thus, the company finds a consulting and technology partner for this complex task. The partner not only has the appropriate experience at a technical and methodological level to set up and implement this project, but also has the international foundation and the necessary soft skills to be able to address both the cross-border dimension and the interests *(which vary to a certain extent)* of the various parties. As a first step, the selected partner fills the key roles of the project with suitable specialists and

then sets up the project structures such that technical expertise and domain competence can be connected. One of the consulting company's concerns is that management must understand why interoperability at the software level is not merely a purely practical task, but it is also an opportunity to secure customers; because the higher the number of devices that are connected with this application, the more homogeneous the overall system landscape in the hospital, which in turn increases user acceptance. Therefore, at every stage of this project, experts with methodological experience who have been trained in communication must be employed. These experts must be able to set up information processes efficiently, combine various perspectives and control the development process across borders and languages.

Using agile methods, professional project management and improvement processes such as Kanban, the technology consultancy integrates the globally distributed teams in a regular communication process and breaks down the complex challenges into steps to enable a better understanding. The partner's experts are also consistently present at the customer site in order to understand and correctly integrate the end users requirements at the location where the device will be used. The technology consultancy scheduels its team so that a high proportion of consulting time is spent at the customer's site for coaching and management of the project. At the same time, a nearshore team with a high level of communicative competence drives the development process and thus reduces time-to-market. This results in tools that the software developers can use to develop the required drivers with more structure, in an improved form and for

FIG. 7: CUSTOMER VALUE

LOGISTIC
RELIABILITY

TRANSPORT
INFORMATION

TIME TO MARKET
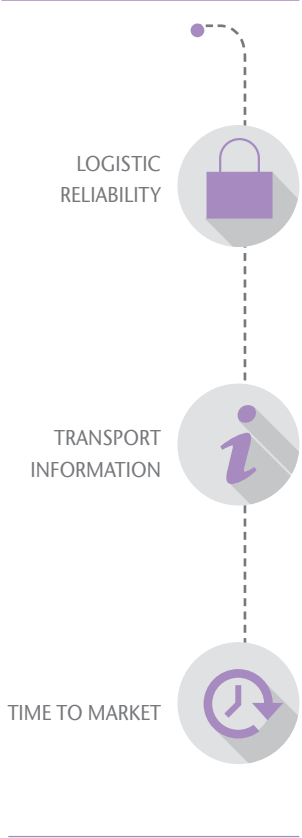
Cross-border software development in the style of Saint-Exupéry: «Don't gather the programmers together to write code; instead, bring all the stakeholders together at the point where the application is to provide its benefits.»

more platforms in less time. In this regard, the technology consultancy always keeps the primary objective in sight, namely that each individual driver is only one piece of the puzzle in a bigger picture, which is enabling the customer to reach the end faster than its competitors and with more sophisticated systems.

Example
COORDINATING AND INTEGRATING

A Swiss infrastructure provider is to be integrated into a trans-European infrastructure project. The project has ambitious objectives: In multiple European countries, capacity planning and booking management of the individual infrastructure providers involved is to be standardised on one central platform across both company and platform boundaries. For this challenge, the Swiss project partner requires external expertise capable of adapting the external *(foreign)* specifications and implementing them. Background information: Stakeholders from Scandinavia to Southern and Eastern Europe, each with their own systems, are involved in this project. The technology partner must be capable of providing personnel resources with an international background and both high linguistic and communicative competence that can act as coordinators and integrators internationally.

At the same time, within this integration project, internal employees are to be instructed in the latest technologies and enabled to bring their domain competence into the new system design. And finally, on one hand, the new platform must be connected to existing legacy systems, and on the other hand, the ground must

be laid for modernisation of the entire IT infrastructure.

The technology consultancy overcomes these challenges by coaching, passing on knowledge and closing productivity gaps. The «live code reviews» initiated by the consultancy are a key instrument in this regard. During these reviews, specific development steps are tracked, discussed and optimised. «Pair programming» is also useful for the transfer of knowledge, bringing both junior and senior developers together in front of a computer. Working together on the development, they both benefit from one another; experience combines with creativity, while understanding for one another as well as for the joint task grows. Both the trans-European project and the integration of the Swiss partner are successfully on track; over the next few years, new functions are planned to achieve even more integration on a step-by-step basis.

ERNI – Innovation in Process and Technology

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SPANISH PASSION WITH THE SWISS SEAL OF QUALITY

Global technology consultancy succeeds when company values and quality demands are combined with the advantages of the respective development location.

Barcelona has become an attractive international technology location and is gradually developing into one of the main IT capitals of Europe. The high level of availability of qualified IT specialists, the geographical and cultural proximity to central Europe, and the Spanish passion, which is distinguished by a proactive approach and a high degree of commitment in projects, make Barcelona a desirable location for international software development projects.

BY PAU LOPEZ, PIOTR MAJCHRZYK AND THOMAS MEYER

In many places, the lack of qualified IT specialists in central Europe is leading to outsourcing to nearshore and offshore development centres. It is in this type of international project in particular, that soft skills such as the ability to communicate and the intercultural competence of the teams are decisive factors for the success or failure of the venture, alongside technical aspects such as IT competence and technical infrastructure. Spain, and in particular Barcelona, stands out as an ideal location in this regard. As a multicultural, economically successful, easily accessible and popular destination, the Catalan capital has become an attractive location for companies from the medical engineering, automotive, chemical and high-tech sectors, as well as both telecommunications and internet industries.

The government specifically supports the IT industry because an important factor in overcoming the economic crisis in Spain is increasing productivity, and IT plays a vital role in productivity growth. Barcelona's excellent reputation as the venue for the annual «Mobile World Congress» also lends its weight here.
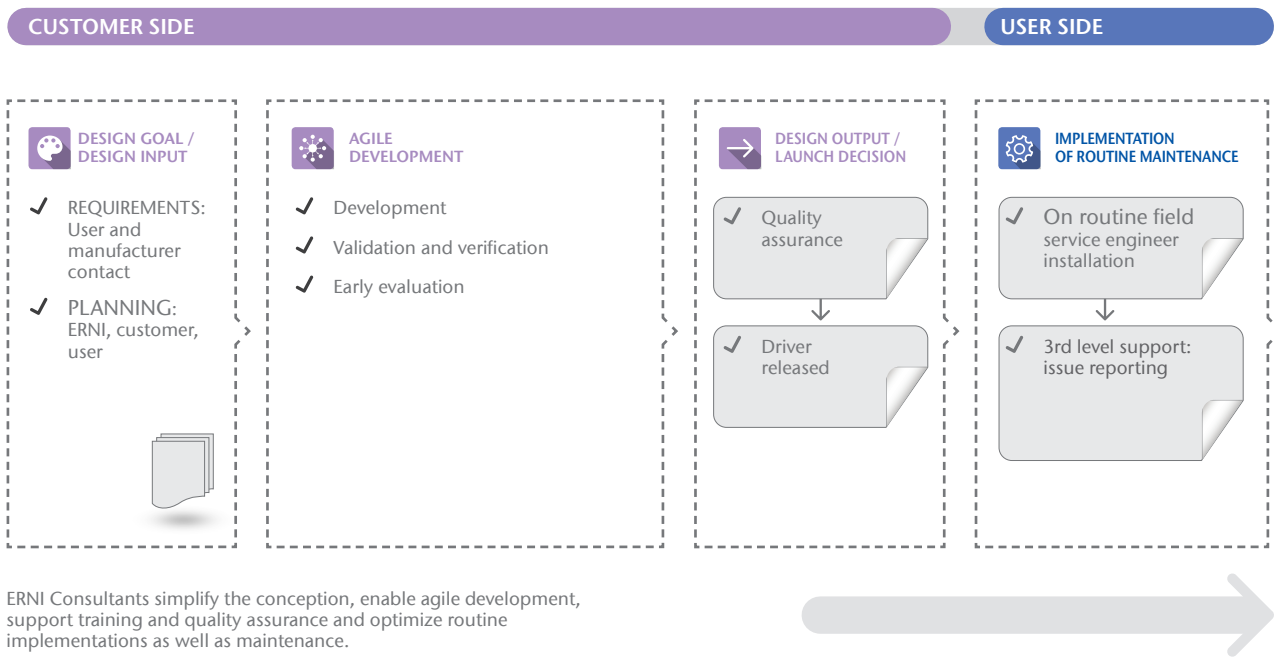
International companies are also increasingly taking on partners for software development aspects of their product development. In turn, for development partners, it is a strategic decision to quickly build teams in Barcelona that can be scaled up and to open an interesting local market for themselves. Companies that settle in Barcelona also benefit from low political and financial risks, cultural differences are minimal and the city can be reached by air from most of Europe with flight time of less than two hours. The proverbial Spanish passion also has the advantage that local employees are seen as extremely communicative, open and proactive. Since qualified IT personnel are available in much greater numbers than in Germany or Switzerland, teams can be set up very quickly. In particular, software companies with Swiss roots and company culture are seen as extremely attractive employers in Spain. Corporate culture as it is lived in Baar, Zurich, Bern or Lausanne is often the norm for Switzerland and Germany, but above average for local Spanish conditions. Thus, a technology consultancy that places great importance on both personal and specialist employee development will not only offer training and further education at its offices in Switzerland and Germany but will treat all locations equally. This includes conveying its ethical values to all employees, developing a code of conduct appropriate to the location and providing training on the use of standardised methods and tools. The benefits are diverse: Employees at branch offices are also highly motivated when they feel, every day, that they belong in the company. This results in high employee satisfaction, which means low staff fluctuation.

«Trust and reliability, adaptability, self-organisation, communicative competence and high-quality requirements for the work performed — those are the ingredients for successful intercultural co-operation in geographically distributed teams.»

FIG. 8: PROCESS OF DRIVER DEVELOPMENT FOR MEDICAL DEVICES

| CUSTOMER SIDE | | | USER SIDE |

DESIGN GOAL / DESIGN INPUT
- ✓ REQUIREMENTS: User and manufacturer contact
- ✓ PLANNING: ERNI, customer, user

AGILE DEVELOPMENT
- ✓ Development
- ✓ Validation and verification
- ✓ Early evaluation

DESIGN OUTPUT / LAUNCH DECISION
- ✓ Quality assurance
- ✓ Driver released

IMPLEMENTATION OF ROUTINE MAINTENANCE
- ✓ On routine field service engineer installation
- ✓ 3rd level support: issue reporting

ERNI Consultants simplify the conception, enable agile development, support training and quality assurance and optimize routine implementations as well as maintenance.

«Since software is designed and developed by people for people, a shared understanding of basics, objectives, ability to work in teams, and social skills are all essential success factors for each project.»

Customers can count on high and reliable quality that is implemented and adhered to at all locations equally and according to Swiss standards.

One factor in becoming established as a knowledge centre within an international group, is a broad range of specialist qualifications; the other is a high degree of specialisation. For an internationally active technology consultancy, it makes sense to focus on specific skills at service centres. This ensures that customers benefit from synergies, best practices, experience and routine. The situation in Barcelona can therefore be seen as attractive from all aspects: In contrast to other economic sectors, the market for IT, telecommunications and high-tech has remained stable, even at the height of the financial crisis. With its «The Mobile World Capital Barcelona *(MWCB)* Foundation», the city and region of Barcelona is campaigning for good conditions for companies and — through its soft landing program — is stimulating knowledge exchange and networking in this sphere. Important international companies even have a presence in Barcelona and appreciate the proximity of qualified technology consultancies with the usual methodological competence, partnership cooperation models and scalable resources that they can access on site and at an international level. In turn, the international and intercultural mixture of the teams enriches the technology consultancies. The teams are supported by close cooperation, regular information exchange, harmonised recruitment and qualification mechanisms as well as a focus on soft skills. Ultimately, software is written by people for people; the programming language and the language in which project participants communicate may vary.

Having a principle understanding for one another and for the common objective, team skills and social competence are therefore much more significant factors for the success of a project than merely the location at which the performance is provided.

Example
INTERCULTURAL DEVELOPMENT COOPERATION

An industrial company has been using a certain piece of software for the configuration, servicing and maintenance of its logistics solutions since the 1990s. Over time, this software has become increasingly complex, difficult to support and simultaneously, no longer modern or able enough to provide the performance required to map all of the existing products, let alone integrate new ones. The company is looking for a technology partner to modernise the software and make it fit for the future. The company takes on board a consulting partner which supports the customer in Germany and provides the required domain knowledge while simultaneously offering the required .NET expertise and scalable resources with its nearshore capacities in Spain.

During the project setup, it becomes clear that the agile software development method fits nicely with a nearshore model. However, the project is ambitious and the requirements are unclear at the beginning. Also, the product owner at the customer is located in Germany. Therefore, from the very beginning, it is important for the technology partner to establish a common understanding of the objectives and the focus of the

«Modern means of communication and transport shrink the distances in nearshore projects. Without doubt, the right setup, proven methods and open and direct dialogue with the customer are decisive factors for success.»

project. The nearshore team examines the products, sets up workshops and uses the milestones of agile methodology to maintain a constant dialogue with the customer. The requirements engineer travels from Barcelona to Germany to work out the requirements together with the customer and to realise them in user stories so that they can be understood by the developers and processed appropriately. In turn, the software developers in Spain focus on cooperation, direct communication, and producing the first demonstrable results as quickly as possible to build up the customer's confidence. In accordance with the SCRUM method, the product owner is involved in regular planning and review meetings via telephone or VoIP; every two weeks he travels to Barcelona to check whether the individual user stories fulfil the acceptance criteria.

A second project phase can already be implemented. In this phase, the software tool communicates with the customer's hardware components and maps the most important functionalities. The challenge lies in building on the proven framework in the domain, retaining familiar services from earlier generations and setting up a highly modern application that offers end user intuitive user interfaces, can be integrated in to the customer's existing IT infrastructure and can be operated on future-proofed devices. The software development partner is currently working on the next release, which should provide even more functionality and added value. In this third phase, the partner benefits from the fact that the preliminary work was well structured and that there was precise definition of which functions have to be available in which release. This is the result of a very methodical setup by

the technology partner which creates structures that ensure constant knowledge transfer to the service centres while allowing them the autonomy to organise themselves for the benefit of the customer. The continuous improvement process leads to the Spanish development team achieving a high level of independence, ensuring good project management, as well as development and testing under their leadership while maintaining the direct link to the customer.

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