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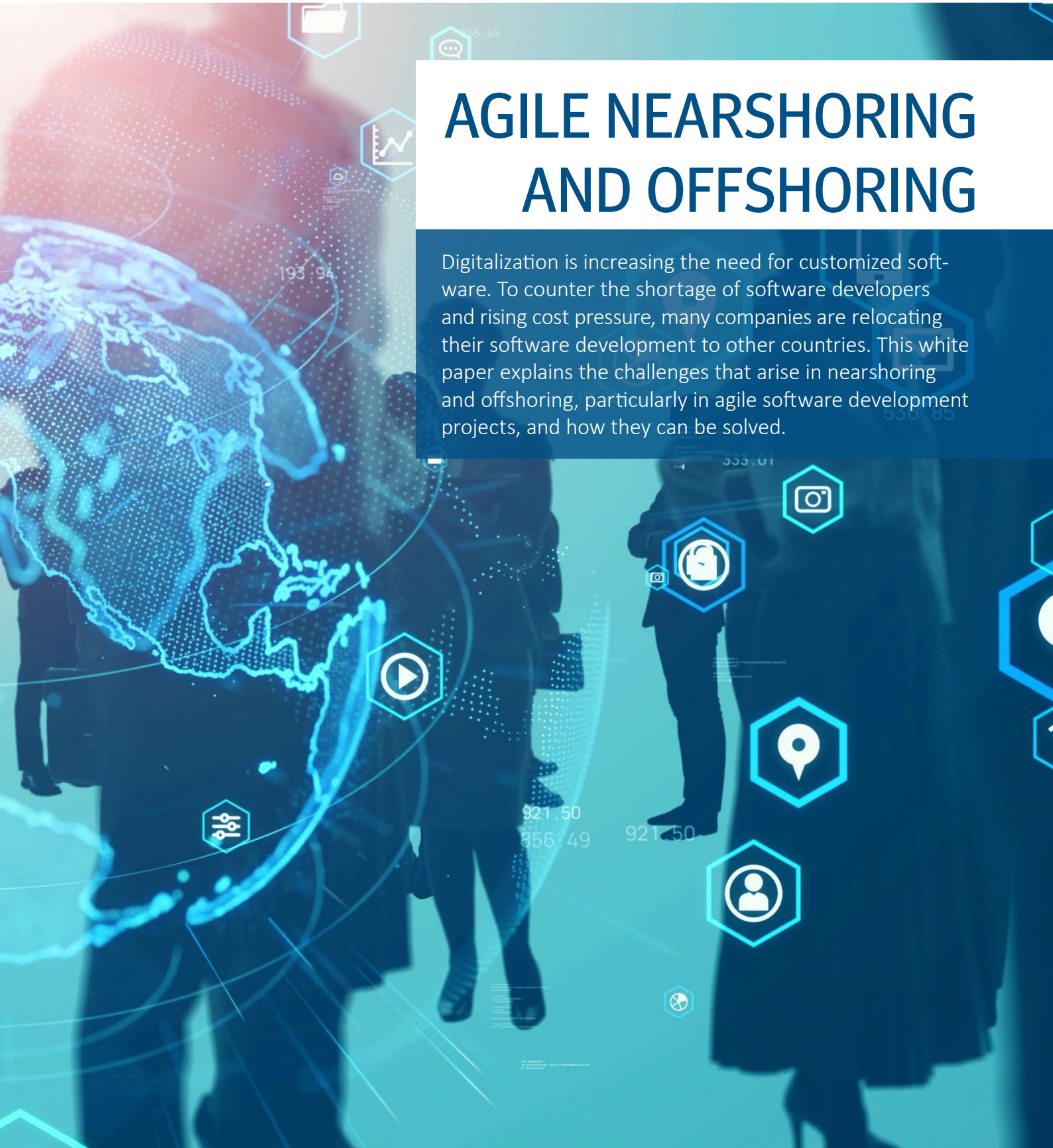
WHITEPAPER



AGILE NEARSHORING AND OFFSHORING

Digitalization is increasing the need for customized software. To counter the shortage of software developers and rising cost pressure, many companies are relocating their software development to other countries. This white paper explains the challenges that arise in nearshoring and offshoring, particularly in agile software development projects, and how they can be solved.

Content

Preamble

The demand for customized software has grown steadily over recent years on the back of digitalization. According to Gartner, the global market for software development services grew by five percent annually before the COVID-19 pandemic and reached a volume of 70 billion US dollars in 2019. Alongside this growth, software development has been shifting to other countries (nearshoring and offshoring). One of the reasons for this is the dramatic shortage of software developers in Europe. In Germany alone, according to bitkom, 124,000 vacancies for IT specialists were unfilled at the end of last year, with software developers being in particular demand. According to Rainer Zeifang, Chief Technology Officer Daimler Projects at PROSTEP AG, “The main driver for nearshoring and offshoring development activities, however, is the increasing cost pressure to which our customers and we ourselves are subjected. Our customers from the automotive and manufacturing industries are globally positioned and are taking advantage of the potential for savings that this global positioning offers. And they expect the same from us.”

Rainer Zeifang can draw on a wealth of experience of nearshore and offshore projects as a result of his current position at PROSTEP and his many years of experience in research and development at various PLM software vendors. In this white paper, he looks at the challenges that arise when working with nearshore and offshore partners, particularly in agile software development projects, and how to solve them.

Cutting costs with nearshoring and offshoring

The distinction between nearshoring and offshoring is not simply a question of distance, although that is undoubtedly one key criterion. Other criteria are also important, such as cultural differences between the partners and the extent of the time differences between the locations involved. The greater the cultural affinity and the smaller the distance, the more likely we are to speak of nearshoring. In recent years, there has been a clear trend towards nearshoring in Europe, one reason being the growing importance of data protection, which is more difficult to ensure when working with offshore partners in the Far East. Nevertheless, India still remains by far the largest exporter of software development services worldwide by hours worked.

For some considerable time, PROSTEP has been working with selected nearshore and offshore partners both in the development of its own software products and in customer projects. The PLM consulting and software company also makes use of nearshoring internally. For the past year, it has maintained a subsidiary in Wrocław, Poland, which uses agile Scrum teams to support the development team at PROSTEP's Berlin office in software development projects for major automotive customers. Zeifang: "As a medium-sized company, we cannot always keep all the skills we need for complex PLM implementations on site at the customer's premises. If we need the expertise of a team in a project for an extended period, this can also be referred to as nearshoring or offshoring."

Question:

How much can be saved with nearshoring/offshoring?

Zeifang:

That depends very much on the task at hand. If the nearshore or offshore team is able to carry out standard IT tasks independently and with little interaction with the customer, the potential savings almost amount to the difference in staff costs compared with those of the customer or the on-site team. However, PLM implementation projects in which we are involved usually require the customer, with their requirements from the specialist or IT departments, to exchange information with the members of the nearshore or offshore team. Therefore we usually work with mixed teams: on-site and offshore. This still results in potential savings of 30 to 50 percent compared with a purely on-site team.

Agile approach as a challenge

Question:

Aren't nearshoring and offshoring actually incompatible with the agile approach?

Zeifang:

Large software projects are subdivided into smaller, more manageable sub-projects anyway. Not everyone needs to have an overview of all the sub-projects. If you choose the demarcation lines between the sub-projects so that they are as independent of each other as possible, each team can work agilely on its own. Agile coordination between the distributed teams requires a certain amount of overhead, but I see that as entirely justifiable.

Regardless of the approach adopted, nearshoring and offshoring entail a number of challenges, and these are of course accentuated by the agile method. The partners have to build a common understanding of the customer project and exchange know-how that is generally in the heads of the developers. They need to establish a uniform approach to ensure that the software under development is consistent and enables a coherent user experience despite distributed teams and long distances. And they must break down obstacles to communication or find new forms of communication that are compatible with agile approaches.

According to the Manifesto for Agile Software Development, the emphasis in agile projects is on individuals and their interaction, not on tools and processes. Trust-based cooperation with the customer is more important than contract negotiations. Typically, these principles are implemented and embodied in Scrum teams located in close proximity to their customer and working very closely with the customer's staff. This is more difficult, but not impossible, with distributed teams.

For every agile practice that is used on site, there is an equivalent for distributed teams. Thus, for example, the daily Scrum meetings, where team members share what they achieved the day before, what they intend to do next and where they are blocked, are replaced by short telephone or video conferences. Thanks to screen-sharing and video-conferencing tools, developers can even work on the code in pairs, as is common with eXtreme Programming (XP). It is crucial that the members of the nearshore and offshore teams have the opportunity to be involved in the project work in the same way as their colleagues on site and that they have the feeling that this is so. Regular communication is all-important for a functioning nearshore or offshore project.

Question:

How important is personal contact/interaction?

Zeifang:

It's very important and is a crucial factor in the success of the project. We make sure that there is regular interaction between people, especially at the start of the project, but also throughout its entire duration. We visit the offshore teams in order to talk about motivation, views and goals face to face. At the start of the project in particular, it is important that the key players get to know each other personally in order to exchange know-how, but also to understand what makes their counterparts tick, what is important to them and how they work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Awareness of cultural differences

According to Zeifang, language barriers are easier to overcome than cultural barriers. English is the lingua franca in nearshore and offshore projects. This ensures that everyone involved can communicate in the same language. PROSTEP also ensures that not only the requirements (in the form of epics and user stories), but also the software design documentation, the variables and comments in the source code and the minutes of meetings are all formulated in English.

The dismantling of cultural barriers requires openness and tolerance on the part of everyone involved, and the process starts at home. Although PROSTEP is a typically German company in many respects, in this context it benefits from its multicultural composition with employees from 20 different nations. This raises awareness of cultural differences. The on-site and offshore teams both have to be aware of these differences and deal with them openly. This also applies to different traditions, as Zeifang explains, citing the example of an offshore team that was used to working with embedded software testers. This fact was ignored when the team was set up, and this promptly led to poor software quality. When the offshore team spoke about this openly, PROSTEP added a tester to the team and the quality immediately improved.

Question:

What is the importance of an open approach to mistakes in an agile environment?

Zeifang:

An open culture in respect of mistakes and flat hierarchies make agile working much easier. The teams have to be able to organize themselves and be able to produce new software in short iterations and also discard it if it doesn't work or doesn't meet the users' requirements. But this is less a question of cultural differences than of the different corporate cultures that need to be taken into account when selecting partners.

Advantages and disadvantages of time differences

Time differences play an important role when collaborating with offshore partners in the Far East. However, they do not always have to be an obstacle. Instead, they can offer advantages in terms of working around the clock. Thus, for example, colleagues in India are able to use the remaining hours of the Indian working day to resolve any problems that a German colleague notices when checking in his software code just before going home. The team in Germany can then carry on their work with an improved version of the code first thing the next morning.

Of course, any issues that require discussion between the on-site and offshore teams need to be dealt with in virtual meetings that are held during joint working hours. This is perfectly possible with a time difference between Germany and India of 3.5 hours in summer and 4.5 hours in winter. Things become more difficult with all-day events such as program increment planning in the context of scaled approaches such as SAFe, which demand flexibility on both sides. For example, you can schedule the meeting as early as possible in German time and ask the Indian colleagues to shift their working hours a little later.

Question:

Do nearshoring and offshoring work with all agile process models (Scrums, LeSS, NEXUS, SAFe)?

Zeifang:

We have had very good experiences with Scrums and SAFe, and I see no reason why this should not work with other process models. Any necessary adaptation of the process models will not depend on the change in location, but on the business requirements of the customer. In our projects, we work with 2- to 3-week sprints regardless of the process model. Shorter cycles are also a possibility in early phases of development. The crucial thing is that the CI / CD pipeline (continuous integration / continuous delivery) works well, that all teams deliver their code continuously and that the software product is built and tested regularly.

Success from clearly defined tasks

PROSTEP's experience has shown that tasks relating to software development and quality assurance as well as all aspects of software development tools and support can easily be outsourced to nearshore or offshore partners. Nearshoring or offshoring always works well when a discrete range of tasks and the responsibility for those tasks can be relocated. These can relate to a software component, the testing of certain functions or even the responsibility for development tools such as a build server or a source code analysis tool. Zeifang: "What in my view have little chance of success are projects where the responsibility is split between the on-site and offshore teams and where each party is reliant on the other."

Question:

How do the distributed agile teams need to be structured?

Zeifang:

In our projects, it is normal for the customer to specify the requirements and define the epics and user stories for agile project management. To achieve optimum implementation of the requirements, it is necessary for the on-site teams to be tightly integrated in the customer's organization. For nearshore and offshore projects, it is also a good idea for the nearshore and offshore teams to send permanent representatives, called "on-site delegates", who act as a link to the on-site team and the customer. As a general principle, the more independent the team is, the more agile it can be and the greater the chances of success.

Question:

What are the roles in the agile nearshore and offshore teams?

Zeifang:

The nearshore and offshore teams are essentially made up of the same roles as the on-site teams. In the Scrum process, these are the product or proxy product owner (PPO), the Scrum master and different roles in the development team such as developer, software architect or tester. The project and the skill sets of the people involved will determine whether these roles will be assigned to the on-site or offshore team. As far as the size of the teams is concerned, the two-pizza rule applies as for all agile teams. In other words, it should be possible to feed them with two (large) pizzas. The maximum size of the offshore teams is eight to ten people, including the on-site delegates, who can have different roles.


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OPERATOR CLASSES
Operator):
mirror to the selected object"""
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context):
active_object is not None

Good experience with on-site delegates

The roles that are assumed by the on-site delegates depend on the type and size of the project. If a completely new solution is to be developed, it is advisable to select a technical lead developer or software architect from the team. This person will then translate the customer requirements into an architecture and work together with the offshore team to implement the corresponding solution. He or she will also present the solution to the customer and ensure that new requirements are implemented in short cycles. When working with a Scrum process, it makes sense for larger teams to appoint a Scrum master as on-site delegate. The prerequisite for this is that the tasks are clearly defined and that the implementation volume is high.

In their role as on-site delegate, the Scrum master ensures that the product backlog is well filled, that the team understands the goals and the scope of the associated user stories, and that the product backlog can be processed efficiently. They ensure that the user stories have a maturity level that meets the requirements of the offshore team and that the acceptance criteria are clearly defined. They support the product owner in prioritizing the backlog to achieve the best possible result. They assist the offshore team in eliminating obstacles and conducting Scrum events. Zeifang continues: “In organizations where the Scrum approach is not yet fully implemented and accepted, they also act as coaches for the development team and work with other Scrum masters to improve implementation in the organization.”

The role of a proxy product owner as a link between the product owner at the customer’s site and the offshore team can also be filled by an on-site delegate. They work together with the product owner on the customer side, define the user stories together with the product owner, are the technical contact for the offshore team and answer their questions, if necessary in consultation with the product owner.

For all roles, it is very important that the on-site delegate of the offshore team has the appropriate soft skills. They must understand the cultural differences between the customer, the on-site team and the offshore team in order to ensure acceptance of the offshore team on the part of the customer and must be able to communicate the customer’s quality requirements to their team.

Question:

And what about coronavirus? What impact will this have on nearshoring and offshoring?

Zeifang:

The coronavirus has led to a rapid change in the world of work generally. Thanks to home offices, distributed working has become the norm, and every software development project has become at least a nearshore project in which even the teams are no longer located at one site, but are geographically separated. Anyone who was used to working in distributed teams have undoubtedly had fewer problems transitioning to the new normality. In our projects, we benefited from having well-practiced on-site and offshore teams. But I imagine that it would be much more difficult to set up a new distributed team with employees who do not know each other and are having to work together for the first time.

PDF version of the white paper:
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Do you have any comments or questions?

We look forward to your feedback at
infocenter@prostep.com

PROSTEP AG
Dolivostrasse 11 · 64293 Darmstadt · Germany
Telephone +49 6151 9287-0 · Telefax +49 6151 9287-326 · E-mail info@prostep.com

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Contact:
Rainer Zeifang
rainer.zeifang@prostep.com

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