

SQmag

07
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THE VOICE OF SOFTWARE QUALITY

DESIGN THINKING IN DIGITALIZATION

*Ulrich Künzel on
the different dimensions
and practical applications
of Design Thinking.*

ARTICLE

PRACTITIONER IN AGILE QUALITY (PAQ)

*Leanne Howard on
being agile today.*

INTERVIEW

NEW WAYS FOR SOFTWARE QUALITY

ACCELERATING ARTIFICIAL INTELLIGENCE WITH AGILE

*Nicolaas Heying on some key
concepts, how to get started
with an agile AI project.*

ARTICLE



A4Q

AI and Software Testing

The new AI and Software Testing certification.

Work smarter.





Stephan Goericke

CEO, International Software Quality Institute

SUCCESSFUL 2019 – 15 YEARS OF iSQI

2019 is getting to its end and we are really proud of what we produced and have created within the 15th year of iSQI. In 2004, our founding year we certified about 300 experts annually. Currently, over 30,000 exams take place annually.

As promised in the last issue of the SQ mag, we welcomed a lot of new products in our portfolio of the International Software Quality Institute (iSQI).

During the summer, we got some interesting new certifications from the Alliance for Qualification (A4Q). The A4Q AI & Software Testing certification being the newest. Everyone that prepares themselves for the exam learns a lot about Artificial Intelligence and how to test it. This is a really important point nowadays. More and more companies produce technological innovations with AI. And they do it at a rapid pace. As we all know, it is indispensable to have excellent qualified experts for this specific kind of development. Making us truly happy to have the certification in our portfolio.

Another new certification is A4Q Security Essentials. Security is an important part that should go along with every development. So it should be in the knowledge-repertoire of every developer, IT manager and tester. With this certification, we think we can support all software development companies, which would like to produce high-quality software for their customers.

This SQ mag informs you about the advantages of agile working, AI and machine learning as well as applying Design Thinking.

Enjoy the read!
Yours sincerely,



DESIGN THINKING IN DIGITALIZATION

Ulrich Künzel

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DESIGN THINKING IN DIGITALIZATION: BETTER DONE RIGHT THAN EASILY SAID.

C *“Careful, something big is coming our way.” This is how the insider blogs, digital information and communication portals, wrote in the early twenty-tens. Approximately three to five years later, the traditional media houses followed in their footsteps in the weekend supplements of their journalistic flagships. And then, at the latest, one was inclined to say: “Take cover! Let’s see what you’re actually talking about.”*

“ ANYONE WHO HASN'T BEEN QUICK ENOUGH TO CATCH-UP FOUND THEMSELVES IN A DESIGN THINKING WORKSHOP TO REDESIGN... WHAT EXACTLY?

Even today, every fan of the digitized world likes to talk a lot about design thinking and claims to use it somehow. It sounds like the pulse of time, like progress, getting rid of unnecessary weight. A buzzword for any methodological development associated with modernizing the world of work and transforming companies towards new business models. Design thinking has had an unprecedented career through the training plans and departmental mantras of digital agencies and digital divisions of companies. Anyone who hasn't been quick enough to catch-up found themselves in a design thinking workshop to redesign... what exactly?

Sentences such as: “We now work with design thinking, that makes us better” or “With design thinking, we can certainly solve our problems much faster” are easily said. Sometimes too easily.

The wonderful thing about design thinking is simultaneously its dilemma: It picks up on many things that already existed and puts them into a new context. Obviously, this encourages a tendency to prematurely claim that design thinking is really being applied.

The Different Dimensions of Design thinking

Design thinking is about user needs: to capture, prioritize, and ultimately find solutions addressing these needs. The most logical way to understand design thinking is by looking at it from three angles:

1. The Process:

Design thinking can be understood as a process of sequential steps. In each stage of this process, questions will be answered in order to better approach user needs. Since errors are inevitable, it goes without saying that it is not only possible to go back to earlier stages, but absolutely necessary.

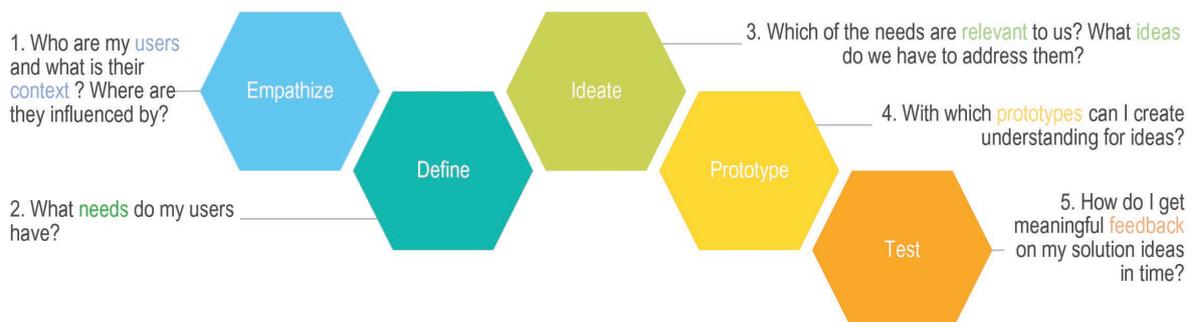


Figure 1: Illustration of the design thinking process used at T-Systems Multimedia Solutions (based on Hasso's Plattner Institute of Design at Stanford).



DESIGN THINKING IN DIGITALIZATION: BETTER DONE RIGHT THAN EASILY SAID.

“ ONLY WHEN A PROBLEM IS
REALLY UNDERSTOOD YOU
CAN MOVE ON TO FINDING
A SOLUTION.

2. The Set of Methods

Design thinking is not a method. There is no “Design thinking Method”. If anything, design thinking is a set of user-centred design methods, which are used in the said stages of the process model (Figure 1), e.g. developing personas or a Customer Journey or conducting guideline interviews with target groups. The challenge is to apply the right method in the right stage and with the right design for the situation. In my experience, a key feature of a good design thinking workshop is when template methods are not simply drawn par for par from a collection of methods, but instead adapted to the context of the workshop and modified if necessary. The more experience someone has in organizing and moderating design thinking processes, the greater the flexibility.

3. The Mindset

Thinking from the user’s perspective, what does that mean? How does it work? The target group for an application of design thinking is never one’s own person or one’s department in the company. Working with design thinking does not mean navel gazing, but working for a target group, often also: discovering a target group first. Developing new ways of collaboration and decision making is a welcome side-effect of design thinking promoting its application. But, it is not the main goal.

Even if the target group has been correctly identified, another problem often arises: a “fetishism for solutions” inherent in product design and the IT industry as a whole. This doesn’t relate to some vague sensation, it can be quantified using semantic analysis. A look at the websites of some of the larger consulting firms and technology providers reveals that between the terms “problem” or “challenge” and “solution” there is a clear imbalance gravitating toward the latter. This is pretty obvious because usually people don’t like to discuss problems. Yet, they should, if they want to use design thinking. This is exactly what the process requires: to put oneself in the position of another, to actively involve target group representatives in the design process. Only when a problem is really understood you can move on to finding a solution. To this end, it is essential to include as many perspectives as possible from different people – keyword: interdisciplinarity.

Practical application of Design thinking

The good news: it doesn’t take much to get started with design thinking. What it requires, it needs without ifs or buts.

1. Theme

The design process needs a theme. What can be considered? In the field of digitization, there are several issues that are affecting many companies and organizations in similar ways. These issues arise in a field of tension between technical possibilities, economic feasibility and most of all: user needs.

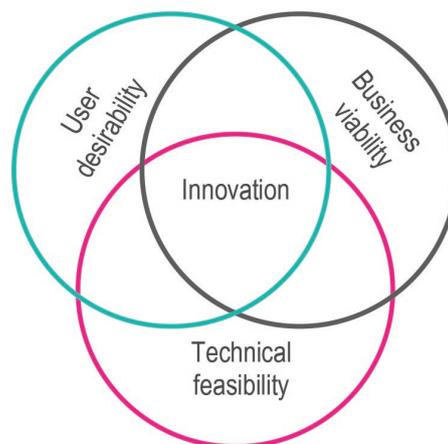


Figure 2: The field of tension enveloping design thinking.

In concrete terms: In digitization, technological development has massively expanded the spectrum of what is possible. These tendencies are creating new expectations among users. Anyone who wants to be successful should understand these expectations and respond to them with attractive offers. This can only be achieved by innovating products and services and the processes they require. For an innovative market positioning, design thinking is the right approach.

Some examples: By networking machines, manufacturing companies can often offer a larger and more individual product range, and they need less time to do so.

“Smart” products, i.e. products equipped with sensors, enable new service models such as predictive maintenance or usage-based billing. As a result, it is no longer just the product that can be sold, but also its use. Reorganizing supplier relationships and the value chain is also a recurring topic. Of course, these new production processes and service models entail new requirements: the more procedures change, the more relevant becomes the user-centred design of the workplace.

In the B2C sector too, design thinking often proves to be an effective approach to developing services that replace traditional offerings, such as: innovative car sharing models or learning platforms for individual training formats.

In addition, the use of design thinking for the development of services and products that contribute to the common good has established itself.

2. Commitment

Design thinking doesn't come for free. If you get involved with design thinking, you accept a few terms and conditions:

- » Openness to results. Questioning user needs and working in interdisciplinary teams usually leads to different results than anticipated. Any pre-definition or restriction distracts from the focus on the user's needs.
- » Willingness to actively participate in a design team that goes through a continuous process. Design thinking is not available by the hour.
- » Constructive handling of target group feedback, even if it questions your own ideas. Design thinking depends on the interaction with target groups. Swift feedback on solution prototypes ensures that the results are accepted easily and have greater market potential.
- » Disregarding departmental and hierarchical structures. In design thinking, responsibilities are determined by the roles one plays in the process, more precisely: by the application of the methods. This can have implications beyond the design thinking process. What has worked within this framework may be regarded by the team as a more attractive organizational structure than the hierarchies in the status quo.

Success with Design thinking

Digitalization shortens the life cycle of products and services and simplifies interaction between users and providers of products and services. To succeed in digitization, user centricity is key.

If you are looking for the right tools to meet that standard, there is hardly a way around design thinking. However, it is not enough to be able to use individual methods from the repertoire. An understanding of the overall process and the target group and the team's constellation is essential, if the methods are to be used successfully and the target groups are to be included. The prerequisite for this is to be open to the mindset and not consider design thinking only as a set of methods. ■



Ulrich Künzel

is digital strategy consultant and design thinking coach at T-Systems Multimedia Solutions GmbH in Dresden, Germany. His focus: Creating useful and innovative IoT offerings with clients from the manufacturing industry and logistics - preferably using service design methods. Before, he worked for CHE Consult and Aperto AG in university marketing. His background: Training at Rowohlt Verlag, media studies and economics at the University of Halle, Germany.

Information about the A4Q Design Thinking certification:
<https://isqi.org/lp/design-thinking/>

DIGITAL BADGES – STAND OUT FROM THE CROWD! LET YOUR CREDENTIALS WORK FOR YOU!

iSQI has launched digital badges! A digital badge is an online standard for recognizing and verifying learning that complies with the Open Badges Specification. Candidates that have been successfully certified with iSQI can celebrate and share their achievements in the ever-growing online marketplace. Use your iSQI digital badge to:

- » Open career opportunities
- » Raise professional profile
- » Establish credibility
- » Show your commitment to learn and improve
- » Give employers and peers confidence that an individual's achievement is validated and authentic
- » Accelerate employer verification checks on your achievements

<https://blog.isqi.org/en/2019/09/11/digital-badges/>



With over 30,000 certifications per year, iSQI paves the way for successful career development. Join an exclusive insight into iSQI's world.

WHAT'S

A4Q SELENIUM TESTER – A SUCCESS STORY

iSQI has been offering A4Q Selenium Tester certification in its portfolio since August 10, 2018. A year after the launch continues to strengthen as an established Selenium Web Driver certification globally. Training companies around the world have added Selenium Tester training to their portfolios.

More than 35 training providers worldwide are now accredited to offer training courses in over ten countries including the UK, Germany, South Africa, India, USA, Canada, Ukraine, Romania, and Poland. Multiple ISTQB® Member Boards have also recognized the importance of this certification and are promoting it as a complementary product to the Certified Tester Scheme to regional testing communities.

<https://blog.isqi.org/en/2019/08/21/selenium-tester-a-success-story/>





A4Q AI & SOFTWARE TESTING

Very recently iSQI has launched a new certification program on A4Q AI and Software Testing. This certification program is supported by training on the topic which can be attended through iSQI Training Providers across the world.

The AI and Software Testing Foundation certification attest to an individual's knowledge and understanding of the use of Artificial Intelligence in relation to Testing of AI-based applications and AI for Software Testing. This Foundation Level course strives to provide a foundation of understanding that enables participation in projects that involves and adopts AI and software testing concepts.

Find out more:

<https://blog.isqi.org/en/2019/10/14/launch-ai-software-testing/>

<https://blog.isqi.org/en/2019/06/17/expert-talk-how-fit-is-your-company-for-the-age-of-ai/>

<https://blog.isqi.org/en/2019/06/18/five-reasons-why-it-is-time-for-quality-professionals-to-learn-more-about-ai/>

HAPPENING

HAPPY BIRTHDAY

iSQI CELEBRATES ITS 15th ANNIVERSARY

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Software Tester is open to career changers as an unprotected profession. However, there are standards that should apply to all testers and are a prerequisite for being taken seriously as testers worldwide. The first version of standardized training was developed in 1998 in the “Certified Tester Syllabus”. Four years later, Austria, Denmark, Finland, Germany, Sweden, Switzerland, the Netherlands and the United Kingdom (UK) founded the International Software Qualification Board (ISTQB), which supported and promoted software tester training internationally.

Exactly 15 years ago, the International Software Quality Institute (iSQI) was founded. “It was and is the goal to create with iSQI an independent instance as a safety net and guarantor for worldwide uncompromisingly high-quality level in the training of IT-specialists”, explains Stephan Goericke, since 2005 managing director of the iSQI group. Since then, iSQI has been offering tests for the ISTQB training scheme and many other topics as well as issuing a certificate to pass the exam. iSQI initially sold around 300 certifications per year.

In the following 15 years after the foundation, iSQI established itself as a fixed size in the German market and the world. In 2009, around 10,000 certifications were sold in over 50 countries. Today, iSQI certifies some 30,000 specialists annually in more than 100 countries. In 2006, the

internationalization of the business started when iSQI became an official certification partner for national boards in Southeastern Europe and India, both members of the main board ISTQB. Other countries followed. In 2013, was the founding of the first subsidiary iSQI B.V. in the Netherlands, closely followed by iSQI Ltd. in the UK in 2014 and iSQI Inc. in the USA in 2015.

iSQI has more than 50 certifications in its portfolio until this day. No longer just for software testers, but for many other topics and professions, such as: agile work, which is increasingly used across industries. Design Thinking, an agile, user-oriented approach to working together in a team to create innovative results that is completely on the needs of the user.

Digitization and automation, as well as the use of Artificial Intelligence, are changing the methods and core areas. There are some key changes that will modify society over the next few years. “After 15 years of intensive work in the IT education sector, iSQI makes it very clear that digitization and automation are nothing without professionals. Artificial intelligence is nothing without the man who tells it what is intelligent. The more complex the systems become, the more important education and training will be. The formula for the future is: Digitization is qualification, plus automation”, says Goericke. ■

Software Tester is an unprotected profession. Standards ensure the quality of the job description. This was the starting point for the establishment of the International Software Quality Institute (iSQI). Founded in 2004, iSQI has been under a considerable growth and is now one of the largest certifiers in the world with headquarters in Potsdam, three international offices and 30,000 certifications per year.

History

- **2004: Foundation of International Software Quality Institute (iSQI)**
 - » Approximately 300 certifications, annually.
 - » Active in German-speaking regions.
- **2005: iSQI as host**
 - » iSQI represents the World Congress for Software Quality (WCSQ)
- **2007: iSQI Expanding Portfolio**
 - » iSQI becomes an official certification partner of the International Requirements Engineering Board® (IREB)
 - » National boards of the ISTQB® work together with iSQI
- **2008: iSQI is certified**
 - » iSQI is certified with the ISO 9001:2008 quality standard following a successful audit.
 - » iSQI and Pearson VUE: A significant partnership launches the examination platform E-Exams in over 5,000 licensed Pearson VUE test centers in 165 countries.
- **2009: iSQI grows rapidly**
 - » Around 10,000 certificates per year
 - » Active in more than 40 countries
- **2011: iSQI worldwide**
 - » Over 11,000 certifications per year
 - » Active in more than 60 countries
 - » Exams available in seven languages
- **2012: iSQI – Next generation**
 - » More than 13,000 certifications per year
 - » Active in over 70 countries.
 - » iSQI introduces the new exam. platform SMEX® – The Smart Exam.
 - » Exams are taken on a Tablet / PC.
 - » Participants receive their preliminary test results immediately after completing the exam.
- **2013: iSQI in the Netherlands**
 - » Over 14,000 certifications per year.
 - » Active in more than 85 countries.
 - » Exams are available in 9 languages.
 - » iSQI introduces a new exam platform FLEX® – The Flexible Exam.
 - » Regardless of where or when you prefer to do your exam. It's entirely up to you, is possible with FLEX®
 - » iSQI opens an office in the Netherlands (iSQI B.V.).
- **2014: iSQI in the United Kingdom**
 - » Over 18,000 certifications per year.
 - » Active in more than 90 countries.
 - » FLEX exam receives “Best of 2014” distinction by “INNOVATIONSPREIS-IT” of the “Initiative Mittelstand” for E-learning
 - » iSQI opens an office in London, UK (iSQI Ltd).
- **2015: iSQI in the US**
 - » Exams are available in 10 languages.
 - » iSQI opens an office in Boston, USA (iSQI Inc.).
- **2019: iSQI Today**
 - » iSQI examines over 30,000 IT professionals worldwide in over 90 countries, 6 continents in 10 languages.



LEANNE HOWARD ABOUT PAQ

“ AGILE IS ONE OF THE BIG MAGIC WORDS IN TODAY’S WORLD OF WORK. EVERYONE WANTS TO BE AGILE...”

A

“Agile” is one of the big magic words in today’s world of work. Everyone wants to be agile, bringing new products to the market faster and faster. These are of course of high quality and exactly adapted to the needs of the customers. But it’s not that easy. This new course will help uplift your teams’ capabilities, “Practitioner in Agile Quality” (PAQ) certification. Here the participants are taught the basics of agile working and the importance of the team in agile projects. SQ Magazine talked to Leanne Howard, one of the main authors of of the PAQ curriculum, about agility, PAQ, and certifications:

“ WE NEED TO MAKE SURE THAT WE ARE DELIVERING PRODUCTS THAT OUR CUSTOMERS REALLY NEED

What does it mean to work agile?

Being Agile is about changing your mindset. It's not really about the methodology. It's about working in a collaborative team, everyone contributing equally to get to the final goal. Everyone should be open to taking on tasks, that maybe they do not have the exact skills for, but that enables the team to be working in the same direction together. It's also about changing culture, allowing teams to experiment, to encourage continuous learning, to fail safely, so that the team is building in quality as they go which makes for a faster delivery.

What is the challenge to work agile?

Often the challenge in working in an agile environment, particularly if you come from a traditional background, is changing that mindset. It's not about "command and control" with a manager telling you what to do but it's about being self-organizing and self-managing. It's about working and collaborating with your team. It's the team goal which is important and not the individual goals or an individual completing their tasks, but the rest of the team having unfinished ones. It's about making sure that we all have a common understanding and we're all working closely together.

What is the challenge about changing the way of working in a team?

I think it's important to understand that moving to agile is not an instant fix, it's not a silver bullet. It does take time for teams to work together in a cohesive way. Teams go through a number of different stages: forming, storming, norming and performing. At the iteration zero, if your team has one, this is a great opportunity for you to discuss challenges and decide how you're going to work together. But most importantly it's about experimenting, it's about trying new things, it's about continuous learning. So try to involve yourself in other activities that you may not normally do and continuously learn new things. Change is difficult. Some people adapt more quickly than others, but it's about the team culture. So if you see one of your team members struggling with adopting new practices then help them out.

Why is it necessary to start working in agile teams?

That's a very simple answer: We've all heard about the industry disruptors and those organizations that are challenging the norm. If you cannot respond quickly enough to your customers' demands or get new products out into the market than you can bet that some other organization will. It's also about making sure that we're improving quality. But it's not all about faster delivery. We need to make sure that we are delivering products that our customers really need, are fit for purpose and are really going to be used. About 60 to 65 % of all software worldwide is infrequently or never used by the intended customers. In an agile team, we respond to those changes delivering software which delights our customers. As stated in the Agile Manifesto, working software.





**LEANNE
HOWARD
ABOUT PAQ**

“ TESTING AND QUALITY ACTIVITIES ARE NOT CARRIED OUT AT THE END OF THE PROJECT, BUT THROUGHOUT THE ENTIRE DEVELOPMENT CYCLE...”

What is the difference between teams which do agile and those who don't?

I think it's quite striking to look at teams that are either doing or being agile and those who are not. You can spot a high performing agile team as they are the ones having fun, whilst delivering on time. These are the teams that are having conversations continuously, you often see people are all working together to solve a problem. There is much more collaboration and there is much more opportunity to grow your skills in an agile environment and try new things. Any team can do the agile ceremonies, but that does not mean that they are being agile, far from it. Watching a daily standup for 15 minutes and you can tell if a team has true agility.

What is the PAQ-course about?

PAQ stands for Practitioner in Agile Quality. And that's really what the course is all about. The trick is that the team is set up in such a way that it delivers the best result during every step of development, using all the abilities of the team members. This means that testing and quality activities are not carried out at the end of the project, but throughout the entire development cycle in small feedback loops. The course provides the framework that helps to increase the team's performance in delivering a quality product.

The course is built using a competency framework with six different competency areas that have a goal to be achieved. When you attend the course it is simply a check to say I "can do" that skill or that competency once you have completed the learning. It's key focus is on practical experimental learning. The team is encouraged to share their experiences, learn and adapt, through frequent retrospectives. It is a safe to fail environment where you have time to try new practices and techniques. You should be returning to your organization, after attending the course, saying "I can do sprint planning" for example.

For whom is the course?

The course is designed for the whole team. It's important that there are no quality police on the team and that the whole team is involved in building that quality in and not testing it out. So everyone has a part play in building a quality product and needs to take responsibility for that quality. It's also about collaborating and working together so that we all have a common understanding and a common goal. Each team member plays a part in understanding what the customer wants, being customer-focused, and in the course activities we explore how having different perspectives about creating the product leads to that delivery being better. In fact, this would be a good course for your whole team to attend as part of team building during iteration zero.



↗
Leanne Howard has participated in many curricula, courses and exams in her advisory capacity and as lead author. She has gained a unique insight into the issues and issues that concern teams and individuals when implementing agile processes. She loves to share her knowledge through training, mentoring and coaching to encourage continuous learning.

What is special in this course? What are the challenges?

PAQ is about experimental learning and also as I said before it's very focused on practical hands-on working. It's not about just learning theory. Sprinkled throughout the course there are a lot of activities and exercises, there are a lot of discussion groups where we encourage you to get involved, often solving peoples' real-world problems. This can be challenging for some people that are attending as they are not used to expressing their views and having them listened to. They need to speak up and that's one of the key elements in an agile team. You need to feel confident by you can share your views and share your ideas. Much of the course is a practical run as through it is a day, or should I say, a week in the life of an agile delivery.

What are the key facts about PAQ?

As I said, PAQ is based on competency learning. There are six different competencies covered during the course. These are linked very closely to the agile manifesto and the principles. We look at things like the agile mindset, engineering concepts, faster delivery of course but that is through building that quality-in. We also look at continuous testing and how all of the team is involved in testing, not just as in traditional projects where it would be the remit of the tester. And finally, we talk about scaling agile. It's important that in an agile environment we recognize that it's not just small teams these days using agile but large organizations are adopting agile and they need to be able to scale this across their distributed teams. We focus on what are the challenges and how do we overcome those. Due to the increased importance of soft skills, part of the change in mindset, trainers continuously evaluate these during the course and provide a value add report at the end for individuals to take away and continue their growth in this area.

Why is it necessary to do certification?

Certification – and the training that is associated with it – allows you to understand and learn about new concepts that you may not have otherwise time to do during your normal day job. It keeps you current with the trends that are happening in the market and the new skills and competencies that employers are expecting you to gain. It certainly helps with uplifting your profile and your CV, if you're looking to change your role or to move to a new organization. But the most important thing is about the continuous learning, it's about challenging yourself and having pride in your career. Certification gives you recognition that you have reached a certain level of competency. Everyone should be learning all of the time.

Thank you, Leanne. █

More Information
about the certification
Practitioner in Agile
Quality: <https://isqi.org/lp/practitioner-agile-quality/>



ISTQB AWARD WINNER

Many congratulations from iSQI CEO Stephan Georicke (ISTQB® Marketing Working Group Award Stream Lead) and all of the team at iSQI to Richard Bender the winner of the ISTQB® International Software Testing Excellence Award 2019. iSQI are delighted to support ISTQB with the administration of all aspects of the Award and, indeed, to contribute to several ISTQB Working Groups.

HAVE YOU SEEN ...



MENSCH UND COMPUTER IN HAMBURG

In September, we spent three days at the MuC conference and delighted to be part of it! Thank you to the UXQB e.V., for sharing their booth with us once again and to all organizers for a great conference. Participants could take part in CPUX exams.

See you next year at MuC 2020 in Magdeburg!

DID YOU KNOW?

iSQI has several Social Media Channel. Follow us to keep up with new trends in software testing, development, agile working methods and much more. Besides our interesting content, webinars, raffles and discounts.

iSQI general:

<https://www.facebook.com/iSQI.Int/>

<https://twitter.com/iSQICert>

<https://www.linkedin.com/company/isqi-gmbh/>

<https://www.instagram.com/isqicert/>

iSQI en Español:

<https://www.facebook.com/isqies/>

<https://www.linkedin.com/company/isqi-gmbh/>

https://www.instagram.com/isqi_es/

iSQI Eastern Europe:

<https://www.facebook.com/isqi.eeu/>



DevTest NORTH

In September, you also had the chance to meet with us at The DevOps & Testing Conference in Leeds, UK. We discussed certifications, along with our special conference offers. We congratulate the winners of the Certified Selenium Tester exam voucher and our very special iSQI marmite! Really great to meet so many people at DevTest North!



DREAM19

At the beginning of October, iSQI was part of the DREAM19. This conference updates on the latest developments in the area of Requirements Engineering and Business Analysis. It was great to meet everyone there!

CERTIFY FOR SUCCESS

Testing professionals need to be able to develop and demonstrate their expertise; certification can be a valuable, and often essential, asset to this. The most convincing accomplishments are measurable, and iSQI certification contributes to this with independent validation of skills.

The benefits of certifications are numerous. They divide into three main aspects:

Professional achievement

iSQI certified professionals build exceptional careers. They understand common processes and standards as well as points of references in a specific field, provide high-quality structured service, show commitment to professional development as well as to discipline, take knowledgeable responsibility for a topic and are able to communicate with standard QA language.

iSQI certified professionals use their certifications to validate their professional knowledge and mastery of skills and attitudes to their employees, coworkers, and clients.

Professional opportunity

iSQI certified professionals compete in the global market for the best IT jobs and salaries. They continuously advance and grow in their careers, improve their job performance and are ready to overcome challenging tasks. iSQI certified professionals show with their certifications that they are interested in their professional development and that they meet the requirements and preparation for a certain task.

Personal Accomplishment

iSQI Certified professionals report pride, fulfillment, success, and empowerment as a result of passing the exam and obtaining the certification. It enhances their contribution in their organization and more satisfaction in their roles. They know how to handle challenges, complexity, change, and they build exceptional careers based on invaluable personal and professional confidence.

iSQI as your certification partner

iSQI dedicates to the success of partners and clients. The company has three main roles as a certification body: knowledge auditor, knowledge editor, and knowledge mediator.

iSQI cooperates with qualifications boards around the world, and this is why our certifications meet the highest requirements for standardization and quality assurance. Also, because they are based on syllabuses and guidelines created by independent experts.

iSQI certifications create security for professionals and businesses alike. In addition, they provide the guidance businesses need to gain a better understanding of the qualifications of professionals in a non-regulated industry.

Certifying with iSQI means certifying for success!

www.isqi.org



ACCELERATING ARTIFICIAL INTELLIGENCE WITH AGILE

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The explosion of artificial intelligence (AI) in companies has brought a new wave of opportunities as well as frustrations. Data science teams want to accelerate delivery and reduce the risk of these projects, but the traditional approach to AI development is hindering their success.

This article will introduce some key concepts, how to get started with an AI project and why an agile approach ultimately allows teams to rapidly integrate AI into other business functions.



**“ THERE’S NO DENYING
THAT AI HAS INFILTRATED
ALL CORNERS OF LIFE**

Artificial Intelligence vs Machine Learning

To set the right context, it’s important to understand the distinction between artificial intelligence (AI) and machine learning. Although it’s at the peak of the hype cycle, there’s no denying that AI has infiltrated all corners of life. While there is no clear definition of AI, the following idea is widely accepted “any machine that displays intelligent behavior.” The famous words of Larry Tesler: “AI is whatever hasn’t been done yet”. Also, nicely summarises the moving target that we are working with. AI spans across many fields of research including logic, semantic webs, natural language processing and machine learning.

BrainCreators are experts in machine learning, a subfield of Artificial Intelligence. Machine learning is a very powerful technology whereby a human enables a computer to learn patterns based on (a large quantity of) example data, also known as training. These patterns are called models and allow the computer to perform intelligent behavior. Models can be used in four different ways:

1. The pattern can make a classification of an unseen data instance.
2. The pattern can be completed to make a prediction about future data.
3. The pattern can help to detect anomalies or outliers.
4. The pattern can cluster similar data points in groups.

Each application is powerful in its own right, allowing machine learning to support solutions across every industry. This works for a range of data such as: images, audio, text and sensors.

Analytical vs. Empirical Approach

A main consequence of machine learning being data-driven, is that it’s almost impossible to analyze the potential outcome of a machine learning model before it’s been trained. Once a model is deployed, this also functions as a black box; meaning that it’s not possible to reconstruct why a model made a certain prediction. This makes machine learning an empirical science where an outcome is hard to predict. The only way to determine whether a model has worked is by running experiments on test data. The empirical approach is relatively new in computer science, up until now the outcome and performance of a system could always be analyzed and predicted in advance.



↗
Nicolaas Heyning,
COO, BrainCreators
In 2007 Nicolaas graduated with a Masters in Artificial Intelligence from the University of Amsterdam. He went on to Co-Found L1NDA.nl, a business that provides an online planning service for the hospitality industry. Nicolaas led the development of the company from start-up to scale-up, turning it into the Dutch market leader. In 2018, Nicolaas joined BrainCreators where he combines a thorough understanding of AI technology with entrepreneurial experience to help define and manage customer AI projects. Furthermore, he enjoys finding the right incentives to make the team operate as well as possible.

Over the last decade, Software Developers have faced similar challenges and shifted their process towards more agile development. This approach breaks down the larger effort into small, bite-sized components that are finished and quickly launched, providing teams with flexibility and the ability to develop products on time. Additionally, this allows for subsequent launches to continuously improve as new components are added. Successful AI teams have observed the success of agile development and begun to apply the same principles to their projects.

Continuous experimentation

The first step in a machine learning project is to create a dummy model that outputs a random or fixed value. This allows any software that has to work with the model to get started on the integration. Naturally, this is the worst model and can only be improved. The speed of development is determined by the experimentation cycle time. So, having the right hardware for training machine learning models is key, as well as the ability to run experiments in simultaneously. Each new model with improved accuracy can be deployed in the development environment and can be integrally tested within the solution. As a general rule of thumb an increased effort is required to achieve increased model accuracy, so ultimately it's up to the business to decide how much of accuracy increase is worth the investment.

The Innovators' Dilemma

Another consideration is the large amount of data often required to improve a product. However, the only way to gather data is by going live with the product. This means launching with a suboptimal performance which can be acceptable for a startup, but for an existing company with a reputation to keep up this can be an issue. This is known as the innovators' dilemma.

IN CONCLUSION, TAKING AN AGILE APPROACH TO AI PROJECTS IS KEY, TO ALLOW FOR CONTINUOUS LEARNING AND RE-PRIORITIZE WHERE NECESSARY. THIS ULTIMATELY DELIVERS VALUE FASTER AND BETTER EFFICIENCY BY BUILDING THE RIGHT SOLUTION. ■

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Book Presentation



“This book, issued to mark the 15th anniversary of iSQI, is intended to make a further contribution to raising the profile of the profession of software testing. How is the profession of tester changing? What must a tester prepare for in the coming years, and what skills will the next generation of software testers need? What opportunities are available for further training today? What will testing look like in an agile world that is user-centered and fast-moving? What tasks will remain to the tester once the most important processes are performed automatically? These are questions that we will have to answer for ourselves.” Stephan Goericke, CEO iSQI Group, and Editor of the book “The Future of Software Quality Assurance”

THE FUTURE OF SOFTWARE QUALITY ASSURANCE

Authors:

Sven Amann
Graham Bath
Frank Faber
Paul Gerrard
Elmar Jürgens
Tilo Linz
Rik Marselis
Mitko Mitev
Alfonsina Morgavi
Zornitsa Nikolova
Gerard Numan
Ina Schieferdecker
Adam Leon Smith
Andreas Spillner
Mark Tannian
Ignacio Trejos-Zelaya
Kaspas van Dam
Hans von Loenhoud
Rini van Solingen
Erik van Veenendahl
Keith Yorkston

About the book:

This open access book, published to mark the 15th anniversary of the International Software Quality Institute (iSQI), is intended to raise the profile of software testers and their profession. It gathers contributions by respected software testing experts in order to highlight the state of the art as well as future challenges and trends. In addition, it covers current and emerging technologies like test automation, DevOps, and artificial intelligence methodologies used for software testing, before taking a look into the future.

iSQI has been focused on the education and certification of software testers for fifteen years now, and in the process has contributed to improving the quality of software in many areas. The papers gathered here clearly reflect the numerous ways in which software quality assurance can play a critical role in various areas. Accordingly, the book will be of interest to both: professional software testers and managers working in software testing or software quality assurance.

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PREVIEW

Any Questions?

PUBLISHER

International Software
Quality Institute (ISQI)
Friedrich-Engels-Str. 24
14473 Potsdam (Germany)
T: +49 331 231810-18
www.isqi.org

EDITOR

Responsible for Editorial Content:
Stephan Goericke
Editorial team:
Anja Schreinert, Andrea Steppuhn
contact@sq-mag.com
Friedrich-Engels-Str. 24
14473 Potsdam
(Germany)

PHOTO CREDITS

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