

MANAGING THE PROCESS OF SUPERVISION OVER THE CERTIFICATE DURING A PANDEMIC – REMOTE INSPECTIONS

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Abstract: The article presents an innovative approach to certification – remote inspections. Online inspections until the pandemic were not carried. The problems that may arise when conducting remote inspections and the reliability in terms of added value for manufacturers and certification bodies were presented. The results of evaluations of such inspections and the problems and threats they pose were presented. Regulations that allowed conducting remote inspections were presented, and the literature on remote audits was reviewed. The research was conducted consisting of surveying auditors and certified clients involved in remote inspections. Survey questions focused on issues when conducting online assessments, how time-consuming these assessments are compared to on-site assessments, and the degree of satisfaction. The advantages and constraints of remote inspections over on-site inspections are compared. Remote inspections were passed positively and are measurable for making decisions on maintaining the validity of certificates.

Key words: inspection FPC, remote inspection, certification, certificate, pandemic

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Introduction

As a result of the COVID-19 pandemic, borders were closed, and many companies were forced to face new challenges. A sudden change in the manner of operation does not exempt from the obligation to apply the provisions of the law (Baryshnikova et al., 2021).

Problems have also affected other industries where we deal with certification, e.g., shipping and forestry (Nam and Kim, 2021; Niscorescu et al., 2021; Srinok and Zandi, 2021). It was difficult to organise audits and management reviews, e.g., in the shipping industry as required by national and international regulations. The limited availability of inspectors and the constraints on their travel to the place of certification, i.e., ports, have become difficult (Nam and Kim, 2021).

Inspections of the factory and the FPC system (inspection FPC) are obligatory for certification programmes (Anttila and Jussila, 2021; Midor and Wilkowski, 2021; Straka et al., 2019). Restrictions on travellers result in not entering a country or having to be quarantined. The lack of possibility to carry out inspections could result in the necessity to suspend certificates. Therefore, it was necessary to develop and

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implement as soon as possible solutions enabling further work. Certificate suspensions could cause the financial standing of companies.

Remote working, including remote inspections, proved to be the solution. Remote working is not something new in Poland, but it is still not popular in many organizations. It is characterized by potential threats to the performance of economic, social and developmental functions through work (Jeran, 2016). Because of the necessary isolation, social distance, and consequent limitations in interpersonal contact, remote work has become part of everyday life, as has learning (Zalewska et al., 2021).

The aim of the article was to show, on the basis of research, that online inspections are reliable and comparable to those carried out in production plants.

Literature Review

Working remotely involves acquiring new skills. Young people, including students, acquired remote working skills much more quickly and easily, including the use of instant messaging, social media and digital tools (Pokrovskaia et al., 2021; Ababkova et al., 2021; Henry et al., 2020; Toker and Baturay, 2019; Ingaldi and Ulewicz 2018).

The pandemic has forced many companies to transform existing processes and practices, including digital technologies, communication platforms, information systems and tools (Kamal, 2020). Because of the pace of the epidemic, employers and employees had quite a little time to prepare for the new mode of work (Bouziri, 2020).

Observations conducted in the area of remote working confirmed the troubles of older people with the use of communicators and digital tools (Lingard et al., 2021; Raišienė, 2020).

In the area of voluntary certification, remote audits have already been conducted across the assessment area, or digital-enhanced on-site assessments have been conducted (Castka et al., 2020). There was no online auditing practice in the area of mandatory certification of construction products.

Remote inspections have economic implications, saving time and reducing costs for companies paying for assessments, including travel and business trip costs. The widespread use of information and communication technologies can also have a comprehensive economic impact (Pradhan et al., 2018; Russell and Wilson, 2013).

The pandemic has resulted in a number of guidelines that give continuity of work. The Polish Centre for Accreditation (PCA) and the group of notified bodies to the CPR developed guidelines depending on the sanitary situation. Communication 312 provides, inter alia, guidelines to conformity assessment bodies (CABs) (Communication 312, PCA, 2020).

On 02 June 2020, PCA published the decision to revoke the decision on conducting on-site assessments and observations in the form of remote assessments. In June 2020, many travel restrictions were lifted.

From autumn 2020 to spring 2021, the epidemiological situation worsened, and remote inspections became a safe tool again. In the document: GNB-CPR NB-CPR/ALL/20/172, a recommendation has been made that action such as suspension or restriction of certificate should not be taken in the current situation just because of inability to visit the production plant. At the same time, the possibility of conducting “atypical audits” (GNB-CPR, 2020) is provided.

The IAF Informative Document (IAF, 2012) explains how to act and what actions can be taken in the event of extraordinary circumstances. Guidelines for the use of information and communication technology (ICT) for audit/assessment purposes were presented by the International Accreditation Forum in 2018 and published by PCA (IAF, 2018). They are also cited as one of the solutions in the IAF Informative Document For Management of Extraordinary Events or Circumstances Affecting Abs (IAF, 2012).

Having analysed the above guidelines in the Road and Bridge Research Institute, the procedure of carrying out remote inspections has been developed. The decision as to whether a company can be inspected remotely is based on a risk analysis. This analysis is conducted in relation to the possibility of confirming a reliable assessment of the product, the FPC system, and the customer's commitments to the certification body. The following issues are considered in assessing the risks associated with conducting a remote inspection: experience with the client gathered during the previous collaboration, timeliness, and reliability of work performed by the client, experience gained during previous inspections, knowledge of the production process by auditors, changes in the FCP system, which have occurred since the previous inspection.

This is in line with the NB-CPR 20/852r3 guidelines, which indicate that remote inspections should take into account, among other things, experience with the manufacturer (GNB-CPR, 2020). According to such guidelines, as a basis for risk assessment, certification bodies should obtain information on how the manufacturer has been affected by the COVID-19 outbreak with respect to the volume of production, personnel, supply of raw materials, availability of support services and changes to procedures to mitigate the effects of COVID-19 (IAF, 2018).

One of the reservations of performing remote inspections (Communication No. 328 of 25.11.2020) is the necessity for the certification body to demonstrate that the place of production is known to the body.

All remote audits were faced with the dilemma of whether they could be treated as equivalent to on-site audits and whether the audited and auditors would meet the requirements of ICT technology. The main problem encountered by the authors of this paper is whether a remote inspection is equivalent to real-time on-site inspection of certified products. There were also concerns as to whether the use of ICT would be convenient for the auditees as well as for the auditors and would allow for the collection of data.

Materials and Methods

A prerequisite for accepting the remote form of surveillance as complying with the accreditation requirements is that the body ensures and demonstrates that the alternative form of FPC inspection used is as effective as on-site inspections, to the biggest extent possible (Communication No. 328, 2020). In order to assess such effectiveness, the Road and Bridge Research Institute (IBDiM) conducted a SWOT analysis.

Strengths: widespread availability of programmes and communicators enabling remote inspection, saving paper.

Opportunities: possibility to carry out inspections without visiting the plant, lower costs for the manufacturer, maintaining inspection intervals as required by procedures.

Weaknesses: no experience in conducting remote inspections, limited capacity to train staff to conduct remote inspections, the need to scan all documents stored in paper form.

Threats: a threat to efficient communication, threats to data security, technical problems, risk of withholding information.

After analyzing, a survey was developed.

The questions were addressed to representatives of certified manufacturers participating in inspections carried out by IBDiM and auditors.

The survey was conducted with 20 representatives of manufacturers of products, i.e. materials for road marking, expansion joints, road traffic safety devices, and 20 auditors. The sample of auditors can be considered representative as about 70% of active auditors of the body completed the questionnaire. Out of about 90 manufacturers certified by IBDiM, the questionnaire was sent to 20. Data were collected for approximately 20 weeks – from May to September. Responses were received from 16 auditees (approx. 20% of the body's clients) and 19 auditors. Surveys were distributed using an online form (Google form).

Two survey templates have been developed for auditors and clients of the certification body. Six questions were common to the research groups, and manufacturers were additionally asked about the involvement of company employees as regards remote versus live inspections. The questions addressed the following issues: the degree of satisfaction with the possibility of conducting a remote inspection, comfort when connecting online, the extent to which expectations of remote inspection are met, the connection quality, a problem with software installation, technical problems, the evaluation of remote versus on-site inspections, the time-consuming work involved in preparing for a remote inspection compared to an on-site inspection.

The form filled in by the auditors contained 6 questions, including 2 closed questions, 2 scaled questions (from 1 to 5) and 2 questions with the possibility to choose the answer suggested in the survey. The survey template dedicated to manufacturers contained 7 questions, including 2 closed ones, 2 scaled (from 1 to 5) ones and 3 questions with the possibility to choose the answer.

Analysis and Interpretation of Results

The vast majority of respondents from the audited group (93.75%) positively assessed (good or very good) the possibility to conduct inspections remotely. This shows that companies are comfortable with this solution and are ready for it.

While observing the inspections, the authors of the paper noted that the willingness to participate in remote inspections was not dependent on the age of the auditees. Active participation in inspections, especially sharing documents, was more of a problem for older people than for younger people. However, this only slightly increased the time of assessments without affecting their quality.

The above observation can be confirmed by a survey of 436 teleworkers in Lithuania during the COVID-19 pandemic, which revealed that older workers highlighted disadvantages of teleworking, including difficulties in using technology, self-organization, separation of work and personal life, and lack of direct interaction with managers and team members (Lingard H. et al., 2021)

For auditors, the situation is somewhat different. 68.42% of auditors positively (good or very good) assess the possibility of conducting remote inspections, but at the same time, 21.05% of auditors assess this solution poorly. It is important to note that all leading auditors (5 people) rated the possibility of remote inspections as very good. The ratings, poor and bad, come only from the technical auditors. Areas of inspection conducted by leading auditors are easier to accomplish remotely: a review of records and documents and interviews. It is different when a technical auditor observes the production, storage and packaging areas of raw materials and finished products. The results are shown in Figure 1.

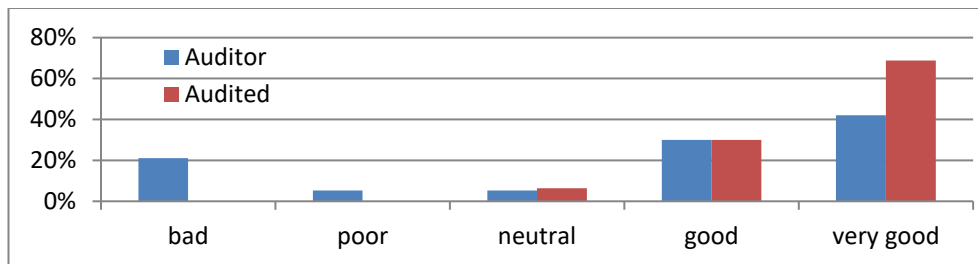


Figure 1: Auditor and auditee responses to the question “To what extent are you satisfied with the possibility of inspecting your plant remotely?”

Online streaming involves many complications and requires more preparation time for the auditor. 57.14% of technical auditors believe that significantly more time is needed to prepare for a remote inspection than is needed for an on-site inspection. At the same time, none of the auditors believes that a remote inspection requires less time to prepare than an on-site inspection. It should be noted that the inspection of a production area is considered the most difficult stage of a remote inspection, as the technical auditor often has to anticipate what he or she would like to see and request

that the camera be directed to a specific location. The structure of the auditors' responses is shown in Figure 2.

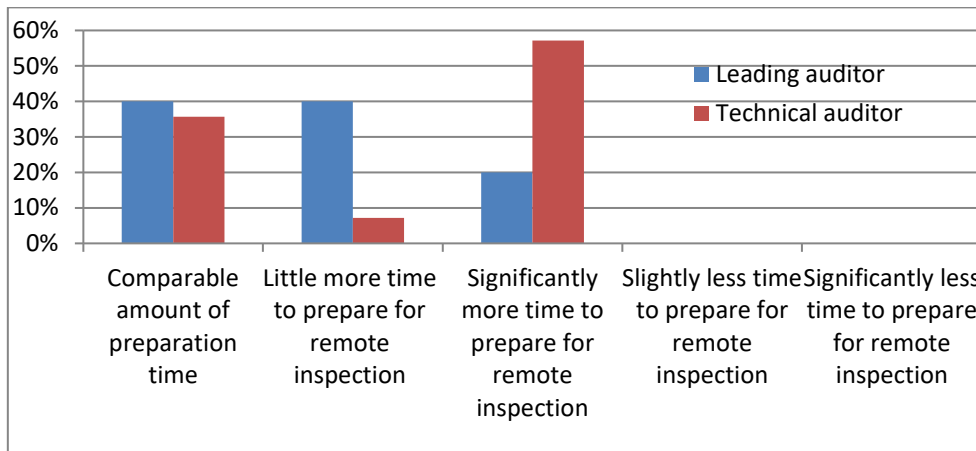


Figure 2: Auditors' responses to the question: "How would you rate the amount of time needed to prepare for a remote inspection versus an "on-site" inspection?"

Responses from manufacturer representatives (audited) are shown in Figure 3. Additionally, Figure 3 illustrates the response to the question about company staff involvement in remote versus traditional inspections.

According to those audited, the amount of time required to prepare a company for a remote inspection can sometimes be even less than an on-site inspection (18.75% of respondents). The majority of auditees believe that preparing a company for a remote inspection requires a comparable amount of time and staff as for an "on-site" inspection.

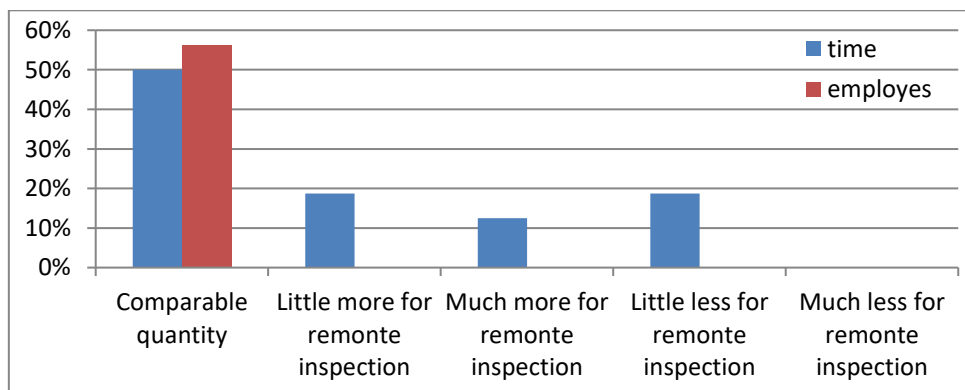


Figure 3: Auditees' responses to: "How would you rate the amount of time it takes to prepare for a remote inspection versus an "on-site" inspection?", and "How would you rate staff commitment to a remote inspection versus an "on-site" inspection?"

All rated the remote inspection as positive or neutral for those audited, with no discomfort during the call. This can attest to the very good work of the auditors, who excelled at conducting the online inspection and were able to clearly communicate any expectations of the content presented.

Most auditees rated their comfort during the call as good to very good. Auditors had mixed feelings, with 21.05% rating comfort during the call poor or bad (including 5.26% bad). The results are shown in Figure 4.

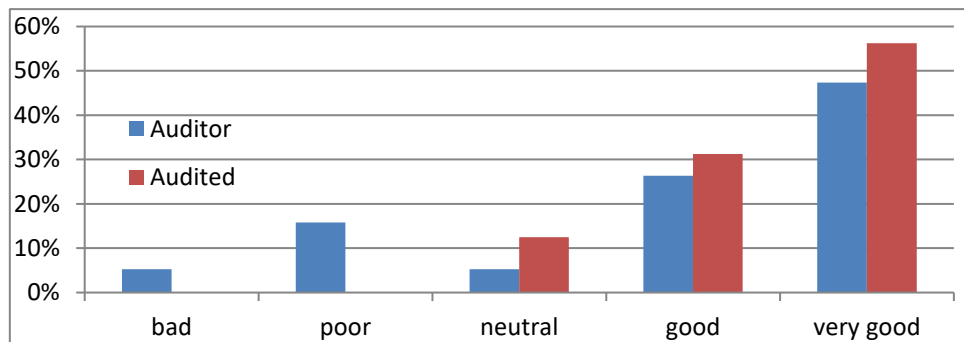


Figure 4: Auditors' and auditees' responses to the question "To what extent did you feel comfortable connecting on-line?"

The reason for such a rating may be the stress related to the new situation coupled with the responsibility for the process of conducting the inspection properly. Despite some of the negative ratings, most auditors felt comfortable with the call – 73.68% of auditors surveyed felt comfortable or very comfortable. Again, the comfort issue during the call only applies to technical auditors, with only "good" or "very good" ratings among lead auditors. Documents presented while connected via file-sharing or sent via email are clear and easy to view. Production observation is very dependent on the quality of the Internet connection and the quality of the equipment, the production site, and the conditions there. The technical aspects of the inspection require more focus while connecting online, and limiting the comfort of those responsible for the process.

An important aspect of conducting a remote inspection is the technical capabilities on the part of the auditor and auditee. When observing production, the auditee must be able to transmit from the production hall, e.g. by installing the application on a mobile device. It is also necessary to be able to enter the production area with the mobile device, which is often complicated and associated with numerous restrictions, e.g. in the chemical industry, there is an "explosion hazard zone" in the production area.

There are programmes on the market that allow for the performance of a remote inspection. During the survey, several capabilities were tested, including Go To Meeting, Cisco Webex, MS Teams, Skype. A manual has been prepared for each of the programmes, which includes a description of the most important programme

functions and the rules of using the application. Both auditors and auditees answered questions on the technical aspects of the remote inspection. The problem with software installation was reported only by 1 auditee (6.25%), while on the auditors' side the problem was reported by 2 persons (10.53%). Technical problems during the call were reported by as many as 56.25% of auditors. These ranged from service problems, programme malfunctions to poor picture and sound quality. Fewer auditees reported problems during inspections (31.25%). This discrepancy may be because the auditor is the “observer”. While sharing a file on screen or streaming online from production, the auditee has no need to look at what is on the app preview. Often they may not even be aware that the image seen by the auditor is of poor quality. There were times when a client spoke and was not heard by the auditor, and the client was not aware of the problem. Only after receiving information about the problem from the auditor by other means (phone, e-mail), was able to try to solve it. Software installation is a non-repetitive process. With the number of remote inspections performed, the experience of those performing them will increase, which should have a positive impact on the ability to deal with technical problems and the speed of solving them. Figure 5 shows the results of the evaluation of technical problems.

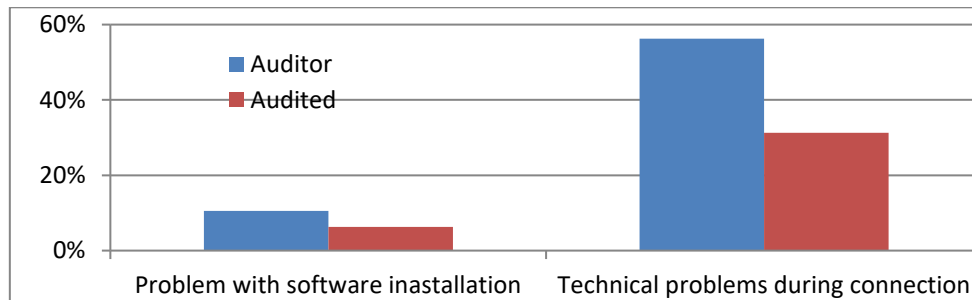


Figure 5: Auditors' and auditees' responses to the questions: “Was there a problem installing the software?” and “Were there any technical problems?”

The most important aspect of conducting remote inspections is their reliability because it can translate into the quality of manufactured products, including the safety of the structure and the safety of use of construction plants. Auditors believe that remote inspection is no more valuable than traditional inspection. 31.25% of auditors say there are more benefits from on-site inspections. Auditees believe there are more benefits to remote inspections. The responses are shown in Figure 6.

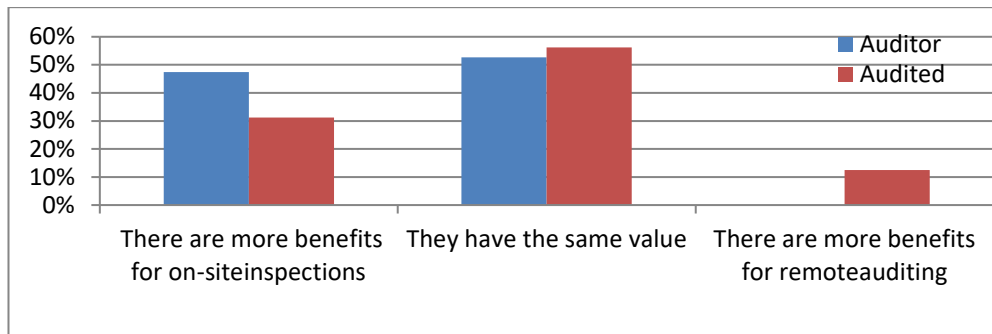


Figure 6: Auditors' and auditees' responses to the question: "How would you assess the remote inspection as compared to the on-site inspection?"

Discussion

In the situation of changing epidemiological threats, the further mode of work of auditors and manufacturers is difficult to predict. Employee safety issues are important. Remote inspections are currently treated as a temporary solution to keep certificates valid. This is not a perfect solution and carries many risks, especially if the situation of inability to travel lasts for a long time.

Auditees' assessment of the greater benefits of remote inspections may be related to the lower costs of maintaining the validity of certificates. The above was confirmed in other management areas: e.g. audits in the area of quality management systems, certification in forestry and shipping industries. The fact that the auditors found that there are more advantages while conducting on-site inspections may be related to the technical difficulties of observing the production process, including the image range and the possibility of more efficient questioning when they are on-site at the production plant, e.g. the proximity of the auditee, despite the loudness of the equipment, questions can be asked on the spot. Auditors conducting remote audits in the area of quality management (ISO 9001) did not have such problems because this audit does not require observation of the production process. There is an ongoing discussion about remote inspections in companies that would like to start certification processes and are not known from previous experience to certification bodies. Is it possible to fully evaluate the factory production control system in the company, where the auditor has never been before? During conversations with auditors, the ease of observing remote production presentations is where the auditor has already been mentioned. Thus, the determination of audit team compositions for conducting evaluations may be an important aspect. Please note that due to the risks of impartiality – familiarity, one auditor must not assess a particular manufacturer more than 3 times in a row. This may affect the validity of the assessments. For those appointed to conduct inspections remotely, who did not visit the production site before, preparation for such an assessment can be significantly time-consuming (Willy, 2021).

Conclusions

The possibility of conducting remote inspections allows for the continuation of work of certification bodies and companies producing construction products, which are subject to obligatory certification. It is a solution that has made surveillance of domestic and foreign certificates possible, even in the face of significant travel restrictions and restrictions placed on production plants.

The surveys were anonymous, which gives greater validity. The size of the research sample was a restriction. In order to confirm the reliability of remote inspections and full benchmarking against on-site inspections, further research is needed, conducted on a larger research sample. The research could be further detailed with comparative analysis of specific inspection elements, e.g. supervision of measuring and testing equipment and raw materials.

In the current dataset, it is not possible to completely compare the values of these two evaluation modes. Full acceptance of the remote mode, including the added value, in the opinion of the authors of this paper, will be possible if, e.g. after two inspection cycles in the remote mode, the next on-site inspection does not reveal critical nonconformities of the product and the FPC system.

The majority of auditors and auditees consider remote inspections to be a positive solution. The comfort of the auditor and the auditee during the online connection is an important aspect. The technical aspects of remote inspections require further work. Additional training for auditors and more detailed instructions for auditees may be useful in this regard.

Remote inspections are considered reliable and provide the certification body with a basis for making decisions on maintaining the validity of certificates.

Technical and technological constraints may affect the unambiguous assessment of the production process, especially during the period of remote inspections, and elements of the production process change, e.g. new production equipment.

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ZARZĄDZANIE PROCESEM NADZORU NAD CERTYFIKATAMI PODCZAS PANDEMII – ZDALNE KONTROLE

Streszczenie: W artykule przedstawiono nowatorskie podejście do certyfikacji – inspekcje zdalne. Inspekcje internetowe do czasu pandemii nie były przeprowadzane. Przedstawiono problemy, jakie mogą się pojawić podczas przeprowadzania zdalnych kontroli oraz wiarygodność w zakresie wartości dodanej dla producentów i jednostek certyfikujących. Przedstawiono wyniki ocen takich kontroli oraz problemy i zagrożenia jakie stwarzają. Przedstawiono przepisy pozwalające na przeprowadzanie zdalnych inspekcji oraz dokonano przeglądu literatury dotyczącej zdalnych audytów. Przeprowadzono badanie składające się z audytorów geodezyjnych oraz certyfikowanych klientów zajmujących się zdalnymi inspekcjami. Pytania ankiety koncentrowały się na kwestiach związanych z przeprowadzaniem ocen online, na tym, jak czasochłonne są te oceny w porównaniu z ocenami na miejscu oraz na stopniu zadowolenia. Porównano zalety i ograniczenia inspekcji zdalnych z inspekcjami na miejscu. Zdalne inspekcje przeszły pozytywnie i są wymierne dla podejmowania decyzji o utrzymaniu ważności certyfikatów.

Słowa kluczowe: inspekcja ZKP, inspekcja zdalna, certyfikacja, certyfikat, pandemia

管理大流行期间证书的监督过程 - 远程检查

摘要：本文提出了一种创新的认证方法——远程检查。没有进行大流行之前的在线检查。介绍了进行远程检查时可能出现的问题以及制造商和认证机构在附加值方面的可靠性。介绍了此类检查的评估结果及其构成的问题和威胁。介绍了允许进行远程检查的法规，并审查了有关远程审计的文献。该研究由参与远程检查的审计员和认证客户组成。调查问题侧重于进行在线评估时的问题、这些评估与现场评估相比的耗时以及满意度。比较了远程检查相对于现场检查的优势和限制。远程检查得到了积极的通过，并且对于做出保持证书有效性的决定是可衡量的

关键词：检验FPC， 远程检验， 认证， 证书， 流行病