Certification – The Key to Future Thermography Markets

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ABSTRACT

Building an even greater credibility for infrared thermography is a crucial task for the future, for anyone involved in this business. In the future, as the old and familiar scenarios are changing, we need to grow into new markets for thermography. In this paper, I want to address how I feel that the market for infrared thermal imaging cameras in the field of electrical maintenance can benefit from a solid, recognized and trustworthy certification procedure. I draw from experience we have gathered in Scandinavia, where we have made some quite interesting experiences.

Keywords: certification, electrical, maintenance, thermography

1. CURRENT TRENDS

The market for infrared thermography or infrared thermal imaging cameras for inspecting electrical equipment is changing. New infrared thermal imaging cameras are coming out on the market, which have drastically higher performance. In the future, we can expect instruments with even higher performance than now, in addition to instruments in price ranges below the present. This will further enhance the trend we are already seeing today – big companies that used to be big buyers of thermography consulting work are now buying their own infrared equipment and doing their own work.

If we look at the market for thermography in general, we can describe it with his graph.

1. Figure 1: Market segments for thermography

At the top we have the big users of thermography, those that were the first to hire consultants in the 60’s and 70’s. As we go down in the pyramid, we reach smaller and smaller (potential) users of infrared thermal imaging cameras. Private homes will probably not be a market for a while yet. There is a trend that has been going on for a while now – the users at the top of the pyramid are buying their own infrared thermal imaging cameras, and create their own thermography programs in-house. As lower cost equipment is becoming available, this can be expected to become an even stronger trend. So if the infrared consulting market is going to prosper, new markets will have to be explored. The future customers of infrared thermal imaging cameras will have to be found further down in the pyramid.

2. A DIFFERENT CUSTOMER BASE FOR CONSULTANTS

If we consider the trends mentioned above, it leads to some important conclusions. Firstly, the market and the selling process will change. Secondly, the reasons for buying the services will change. And thirdly, the market will demand that we can prove ourselves better as consultants. Here is why I think that is the case.
Previously, people who are either knowledgeable in the infrared maintenance principles or able and willing to learn have bought the services. Their reasons for buying infrared thermal imaging cameras have been mainly maintenance and reliability oriented. They have wanted to reduce downtime most of all. And that is what we have sold them. Reduced fire risks have been a good reason too, but not always the main reason for buying infrared thermal imaging cameras. The consultant has had to prove himself by doing good jobs and getting long experience and good references that the buyer can check. Both parties have been able to afford spending a good deal of time in the selling/buying process, since the contract has been about several days or even weeks of work.

In the market segments further down in the pyramid, this will change. We will have many small customers, instead of a few large ones. Every sale of an infrared thermal imaging camera must be made quick and easy, or not at all. We cannot expect the customers to learn much about what we do. The people we will deal with are not going to look at maintenance theory and principles – farmers, school board directors, and small industry managers will have other priorities for their time. And we cannot afford to spend too much time to sell half a day of work. Our credentials will have to be very clear and understandable and issued by a body the customer knows about and trusts.

### 3. RECENT DEVELOPMENT IN SCANDINAVIA

In Scandinavia, there has been a very interesting development in this direction. We have found ways of dealing with the information gap that is the inevitable result of the reasoning above.

Ask yourself this:
- Who has exactly the same customers that we potentially want?
- Who has in their interest to prevent electrical fires?
- Who has the trust of the customer if they act as a third party endorser of thermography?

The answer is the insurance companies!

If we can sell thermography through infrared thermal imaging cameras to the insurance companies, they will sell it to their customers. It is in everybody’s interest to prevent fires. Fire risks are dreaded by everyone and easy to explain the consequences of. Once the ideas are explained to all involved, it is not at all difficult to get support, because everybody wins if thermography is used more.

In Sweden and Norway today, we have certification systems for electrical thermographers that are supported by the insurance companies and their organizations. In effect, we have a situation where the insurance companies recommend using infrared thermal imaging cameras to their customers. This has created a tremendous growth of the electrical thermography market, so far mainly in Norway since they were first. The clue to all this has been certification. Insurance companies will not endorse something they cannot control the quality of, especially if the customer can not be expected to understand the technology in question.

We can look at it like this.

![Fire risks diagram](Image)
2. **Figure 2: Certification is the hub in a system where all involved are winning**

The connection between the insurance company and the customer, and between the thermographer and the customer, has always been there. The new thing is the connection (in an organized and suitably bureaucratic manner!) between the insurance industry and the thermography business. The hub of it all is the certification, without which this would never happen. Another important reason why we have been able to create this system is the fact that we have thermography organizations in both countries, where thermographers meet and exchange ideas and experiences. An individual thermographer who suggested something like this would perhaps be taken seriously by the insurance industry, and perhaps not. In either case, the people in the thermography business would have to be convinced as well, or the whole thing would fall flat to the ground. In Scandinavia, we have a long tradition of creating consensus around things like this, which means that it takes a lot of work to create, but once the system is in place, there is no more controversy that may destroy it.

4. **HOW IT FITS IN WITH OTHER CERTIFICATION SYSTEMS**

Certification systems like this will not replace the offerings of training and certification organizations such as the Infrared Training Center, but quite on the contrary. In the case of Scandinavia, the certification that the insurance companies have introduced would not have worked, if training and certification according to ASNT Level 1 had not already been in place. In the new certification for electrical thermographers, more demands on the thermographer with regard to knowledge in electrical systems and safety have been added. They have also demanded use of yearly-calibrated infrared thermal imaging cameras with trace ability and certain minimum performance. So, without training there will be no certification. And the certification bodies that the insurance companies have do not train in thermography.

5. **THE BUREAUCRACY AROUND IT**

This leads to some other interesting issues, namely, who does what? In our case, in Scandinavia, we are dealing with rather small countries where almost everybody in the business knows each other. In a larger country, things would probably look a bit different, also with regard to the general framework of the organizations that may become involved. I am restricting this to local conditions. In some ways, we have been lucky that the organizational structure is the way it is, and it suited our purpose well.

6. **WHAT A THERMOGRAPHY GROUP CAN DO**

I have already mentioned the necessity of a thermography group or some kind of forum where thermographers can voice their opinion. It is important, at least as far as we have found, that this forum is open to everyone. If some people feel that they have no say about it, it will create controversy that may jeopardize the whole thing. The first discussions about certification started about ten years ago, in the Norwegian thermography group. That is how training and certification started in Scandinavia, with courses based on the ASNT Level 1 and 2 outlines. Over the years, this system gained acceptance within the thermography business. It was the thermographers themselves who created the necessary credibility by promoting it to their customers.

7. **SEPARATING THE TASKS**

As thermographers who are promoting our own standards, we can only reach a bit of the way to a more general acceptance. To get a better impact, we need someone well known to back us up.

In our case, the certification system involves the following organizations:

- **SBF (The Swedish Fire Protection Association, member of CFPA (Confederation of Fire Protection Associations))**
- **SBSC (The Swedish Fire and Security Certification Company, an Accredited Certification Body according to SS-EN 45013)**
- **SWEDAC (The Swedish Board for Accreditation and Conformity Assessment, a Swedish public authority, responsible to the Ministry for Foreign Affairs [www.swedac.se](http://www.swedac.se)**

SBF is a (non-profit) foundation in which everyone, companies or persons, can become a member. The interesting part for us is that SBF is heavily involved in insurance issues, and all major insurance companies are members, and play an active role. SBF has set up the norm (SBF Norm 1999:1) to which the thermographers are to be certified. That is all they do. Anyone who wishes to certify thermographers according to their norm can do so, if they have the competence and can prove it.

SBSC is owned by SBF, but is a company (not a foundation), which is completely separated from SBF. They do the certification. The separation is very important, and is strictly maintained. SBSC is, in turn, controlled by SWEDAC. They
ensure that SBSC is doing their job as a certification body, in accordance with SS-EN 45013. At any time, they can come to SBSC and check their procedures and paper work etc.

Altogether, this makes the system very solid and difficult for anyone to manipulate. There is a good deal of bureaucracy involved, but that is necessary, because it creates predictability, which in turn builds credibility. The way we see it, it is the bureaucracy we pay for, and it is worth it!

8. WHAT ABOUT ASNT?

As mentioned earlier, the SNT-TC-1A from ASNT has a role to play in this system as well. The knowledge level of the thermographer, with regard to thermography, is based on the ASNT Level 1 recommendations. Why reinvent the wheel? And with training available with a suitable curriculum, there was no need to come up with something new.

It is interesting to note that the Infrared Training Center and other training organizations are using the ASNT Level 1 and 2 outlines in a similar way that we use the SBF Norm 1999:1, to which SBSC issues certificates. One organization issues the norm, and another one does the certification – the tasks are separated!

The ITC issues ITC certificates, not ASNT certificates, which can only be issued by ASNT. In our Scandinavian system, SWEDAC has a control function over SBSC, and the training organization (ITC) is yet another, separate entity. So the training given by the ITC is necessary to allow the student to take the exam for the SBSC certificate, and the certificate from the ITC is a completely different thing.

9. A ROLE FOR ISO 9000

The ITC International in Sweden has drawn on the experience and resources of FLIR Systems AB to become the first ISO 9001 certified infrared training organization in the world. We feel that this raises our credibility another notch. We have mentioned the ISO 9001 certification to some of our students so far, and they have been very enthusiastic. We have established procedures for quality management and document control. The ISO 9000 system performs the same independent control function for us at the ITC International as SWEDAC does for SBSC. This ensures that the control is really independent.

10. OUR EXPERIENCES SO FAR

The availability of ASNT as a guideline for the training has been a tremendous asset for us when we have set up our own systems. What we feel though is that the ASNT certification system itself does not suit our needs very well. ASNT is best established in NDT, an application where only very few of our thermographers in Scandinavia are active, which gives it a narrow scope. SBF and SBSC is very widely known outside of NDT circles here, and connected to the insurance business, which adds an extra growth potential. The reactions from our customers in Sweden are very positive so far, even though we have only had the system in operation for a couple of months. With the experiences from Norway, where the reactions have been absolutely overwhelming, we are confident that this will be the case in Sweden as well, once we have a larger group of thermographers certified and the insurance companies begin to move ahead.

One thing can be clearly seen: The idea of this kind of certification is definitely catching on with the thermographers in Sweden, and in Norway it is absolutely unthinkable to start a business in electrical thermography, without the Norwegian counterpart, the NEMKO Termsert 01. In Norway, electrical contractors are actually contacted by insurance companies who want to send their customers to them, for thermography work. Many of those have gone first to NEMKO for advice. Then they go to the ITC for training, before buying an infrared system and setting up their thermography business. The growth of thermography has taken on a new dimension.

11. REFERENCES:

1. SBF Norm 1999:1
2. NFPA 70B, Recommended Practice for Electrical Equipment Maintenance
3. ITC International ISO 9001 Procedures