**On the professional authority of quality engineers and the gaps in their epistemic and organisational authority**

Sharon Anker1,2,\* and Yotam Lurie1,

1Department of Management, Ben-Gurion University of the Negev, Beer-Sheva 8410501, Israel

2Shimon Peres Negev Nuclear Research Center, Beer-Sheva 8419001, Israel

\*Corresponding author. Email: sharon\_anker@hotmail.co.il / yotam@bgu.ac.il

Sharon Anker has an MSc in Environmental Engineering from Ben-Gurion University of the Negev. He is currently Manager of Quality/Organizational Excellence at the Shimon Peres Negev Nuclear Research Center. He holds certifications from the Israel Society for Quality (ISQ) and the American Association of Quality (ASQ)

Yotam Lurie is an associate professor of business ethics in the Department of Management at Ben-Gurion University of the Negev. He has served as chair of the Department of Management and academic director of the Executive and International MBA Programs at the Guilford Glazer Faculty of Business and Management at Ben-Gurion University. His main areas of interest are applied ethics – particularly business and professional ethics – organisational ethics, and ethics in information technology. His publications have appeared in leading international journals, including *Journal of Business Ethics*, *Science and Engineering Ethics* and *Metaphilosophy*.

# ABSTRACT

Although the role of the quality engineer can be defined, the authority of quality engineering as a profession is a contested issue that relates both to the occupation’s internal regulation and to the professional status of quality engineers within the organisations for which they work. In this article, we examine the professional authority of quality engineers from both these perspectives. The issue is addressed first through a conceptual framework, followed by a presentation of an empirical study in which seven experienced quality professionals were interviewed and completed questionnaires. We focus on the situation in Israel as a case study, but our insights are relevant to quality engineers throughout the world. We demonstrate limitations with regard to both (1) the epistemic authority (expertise) of quality engineers vis-à-vis their status as a professional association, and (2) the organisational authority of quality engineers vis-à-vis their organisational role as quality managers. These limitations can be attributed to: the occupation’s status as a semi-profession; the level of expertise required is not fixed or uniform; the authority of a quality engineer varies from one organisational structure to another. In addition, individual quality engineers are accorded different levels of influence, usually at the discretion of their employing organisations. For these reasons, the expertise of quality engineers as a professional group remains an open issue.

**KEYWORDS**: profession; authority; quality; quality engineer; expertise

# INTRODUCTION

The professional authority of quality engineering is a contested matter that relates both to the occupation’s internal regulation as a professional association, with clearly defined standards of expertise, and to the role and status of quality engineers within the organisations for which they work. This paper examines the professional status of quality engineers in Israel and argues that there are limitations to both (1) their epistemic authority (expertise), in terms of the status of their professional association, and (2) their organisational authority, in terms of their organisational role as quality managers. Each issue is a manifestation of quality engineering’s status as a ‘semi-profession’ ([Etzioni, 1969](#Etzioni); [Lortie, 1969](#Lortie); [Morris 2006](#Morris); [David, 2015](#David)): the expertise required is not fixed or uniform, and the authority of a quality engineer varies from one organisational structure to another. As a result, the professional authority of a quality engineer is not uniformly established or recognized; rather, it is determined onsite, according to specific organisational arrangements. In most organisations, the role of the quality engineer requires ‘soft skills’ rather than unique knowledge ([Blades, Fauth and Gibb, 2012](#Blades)). The authority of the quality engineer therefore emanates from the norms and practices within the organisation rather than from a regulator.

We examine the professional authority of the quality engineer in light of noteworthy quality failures that have affected both companies and consumers. Recent events involving quality-related flaws in production, manufacturing, and construction in Israel and worldwide have highlighted the need for professionalism in quality engineering and the issue of the authority – or lack thereof – of quality engineers. For example, a pharmaceutical company in Israel, Remedia Inc., changed its non-dairy baby formula without following quality engineering protocols, which resulted in the deaths of two infants and severe injuries to another 23 infants ([State of Israel v. Balak et al., 2013](#StateofIsrael2000)). Events such as these have stimulated discussion about the need to institutionalize the quality profession. Some quality engineers working in industry in Israel have gone as far as to claim that a professional and empowered quality engineer can reduce or even prevent the occurrence of such events, and that establishing minimum qualifying standards for practitioners will reduce the risk of similar errors.

The current article focuses on the situation in Israel, although its insights are relevant to companies around the world. It consists of two parts. The first part presents the theoretical construct underlying our argument, elaborating on the concept of a semi-profession in contrast with the ideal of a profession, and investigating the notion of professional authority in terms of both the epistemic authority of a professional association and the organisational authority of the individual within an organisation. The second part demonstrates the argument empirically. The data for the research are derived from questionnaires and in-depth interviews with seven quality personnel from a range of leading disciplines, and an integrated qualitative method is used. The results provide insights into how quality practitioners perceive their professional role in the hierarchical structure of a firm and how managers can leverage the tension between expertise and authority for the benefit of their organisations.

# Aim

This work examines the professional status of quality engineers in Israel in the context of two key concepts: expertise and (professional) authority. Today, not only are the professionalism and expertise of Israeli quality engineers not fixed or uniform, but their authority within the structure of the organisational hierarchy is unclear. Methodologically, by looking at some of the tensions and conflicts between the quality engineer and other stakeholders in the organisation, we explain the quality engineer’s contested authority. More specifically, we answer the following four questions:

1. What type of authority (organisational, specialized professional knowledge, institutional) does a quality engineering have to perform his or her role?
2. What is the authority of a quality engineer compared to other professionals within the organisation? One way to demonstrate authority (or lack thereof) is through an examination of internal organisational power struggles. When there is a conflict between a quality engineer and someone else (working in procurement, production, operations, finances, etc.) who makes the decisions and who is in control?
3. To what extent does a quality manager’s authority relate to his or her expertise?
4. In view of the above-mentioned problems, in normative thinking about the optimal state of affairs, in what way should authority be conferred on the quality engineer by the stakeholders?

The literature has not yet assessed the impact of quality engineers’ professionalism on their success in increasing company profitability. Recent events in the field of quality, such as Remedia, indicate that there is a connection between organisational culture and product quality.

# PROFESSIONS AND SEMI-PROFESSIONS

## Professionalism and Professional Authority

A professional group is an organisation or association that provides a service and holds unique theoretical knowledge; it requires its members to complete complex studies and post-examination certification ([Abbott, 1988](#Abbott)). The literature differentiates between two types of professionals: those involved in major professions such as medicine or law ([Glazer, 1974](#Glazer)) and those involved in semi-professional occupations such as teaching or pharmacy ([Benveniste, 1987).](#Benveniste)

The term semi-professional, which is often associated with quality engineering, has been applied to occupations that require a relatively short period of training, do not have a standardized, uniform body of knowledge, and are largely based on technical skill.

Because of their reliance on a relatively weak body of knowledge (among other reasons), the authority of semi-professionals vis-à-vis customers and the company or firm in which they work is lower than that of professionals. This is in contrast to the monopoly-like situation enjoyed by professionals, which allows them to oblige customers and employers to agree with their analysis of a situation and to accept the proposed treatment/solution ([Lysaght and Altschuld, 2000](#Lysaght)(. It also enables the professional group to demand prestige and ample remuneration.

The literature also delineates three actions that all professionals perform when solving a problem: (a) diagnosis – collecting data and categorizing needs based on their extensive experience and knowledge ([Abbott, 1988](#Abbott)); (b) identification – determining the source of the client’s problems and difficulties ([Hughes, 1963](#Hughes)); and (c) resolution – addressing the problem to the subjective satisfaction of all stakeholders ([Abbott, 1988](#Abbott)). Essentially, the knowledge that the professional calls upon to help resolve problems is based on uniform, specific criteria for precise performance that are defined as guiding criteria for accurate execution of the occupation concerned.

The law also plays a role here; each jurisdiction has methods of defining the uniqueness of a profession, and its legislatures or courts set standards of performance as well as principles, restrictions, ethical prohibitions, and rules of conduct according to the values deemed unique to the profession.

Max Weber (1986) defined authority as ‘the likelihood that certain specific orders from a given source will be met by a given group of people’. The degree of success of a quality engineer in a position does not depend solely on this, but it does rely to a great extent on management support and on the behaviour of all the employees in the organisation. Because of a lack of authority and knowledge, many quality engineers find it difficult to cope with the challenges they face ([Ekroni, 2012](#Ekroni)).

Professions have been conceptualized as incorporated bodies of experts applying theoretical knowledge in practice (Carr-Saunders and Wilson, 1933; [Matthias, 2016](#Matthias)). The members of the standard expert professions (such as medicine and law) are required to be well versed in a body of theoretical knowledge and trained in a range of appropriate skills and techniques, acquired in extended study and training that includes a long internship period and certification tests. Members must also abide by an ethical code and internal regulations, and accept disciplinary procedures should they fail to do so ([Freidson, 1994](#Freidson1994)). In contrast, professionals working in the fields of cybertechnology, sports, and music base their expertise on ongoing training. As they work, they analyse and assess where they went wrong and how they can prevent future mistakes ([Ericsson, Prietula and Cokely, 2007](#Ericsson)).

Although they are granted the status of providers of services essential to the lives of their clients, their work does not guarantee positive results for those clients; a doctor’s patient may not recover, and a lawyer’s client may be convicted. Law courts treat the testimony and signed affidavits of expert witnesses seriously because they assume the professionalism of these experts, expecting that they will behave in ways that preserve their reputations and professional credibility.

Being a member of a recognized association empowered to supervise professional education and qualification accreditation enables the individual professional and all the members of the association to assert legitimate claims of ownership of knowledge, expertise in the handling of certain kinds of problems, and jurisdiction in their field of competency. Achieving this right largely determines how much ‘power’ the professional has, how well employing organisations accept the professional association’s demand for a monopoly on professional knowledge, and the extent to which employers recognize the association’s ownership of the professional jurisdiction.

Worldwide, professional groups have demanded and received recognition of their professional authority in three dimensions: collegial, cognitive, and moral (House[, 1993](#House); [Smith, 1999](#Smith); [Picciotto, 2011](#Picciotto); Mike, 2016). Recognized professionals enjoy control and autonomy of professional decision-making in their work ([Abbott, 1988](#Abbott); [Freidson, 1994](#Freidson1994)) in return for a commitment to providing a quality service that benefits the employing organisation. In this connection, autonomy is the right of professionals, as individuals and as a group, to use their own judgement in selecting the relevant skills and techniques to apply based on abstract knowledge and the scientific validity of the profession’s jurisdiction to deal with problems that arise ([Abbott, 1988](#Abbott)).

## Quality Engineers and their Organisational Role

There are three main types of organisations for which quality engineers work. The first type includes organisations working according to government regulations (for example, pharmaceutical companies). In such organisations, the quality manager is involved in almost all processes, enjoys correspondingly high levels of authority (conferred by laws and standards that are clearly defined), and is unlikely to be opposed. The second type includes organisations involved in the food industry. Here, too, the quality manager is involved in many processes and has a strong standing, albeit with less authority than in pharmaceutical companies. Organisations of the third type, namely industrial organisations and service providers, constitute approximately 75% of organisations. In such organisations, the quality manager is often considered a burden and may be ignored or side-lined for business reasons.

Today, the role of the quality manager is one of the most challenging in any organisation. Unlike other positions, it is multidisciplinary and requires an understanding of all aspects of the organisation’s activities (including, but not limited to, marketing, production, maintenance, and R&D). Therefore, being a good quality manager is no simple matter. The quality engineer is a vital contributor to a company’s commercial success, who, nevertheless, must work to avoid being positioned as an ‘enemy’ or as a control department; rather, the quality engineer should be an important and trustworthy partner in the company’s development and business achievements. In fact, a professional quality engineer can increase a company’s profitability.

Prominent practitioners in the field from the Director of the Quality and Accreditation Division to the Standards Institution of Israel, addressed the issue of the professionalization of quality engineering. They noted three main characteristics of a quality engineer: (a) relevant knowledge in the form of a professional background relevant to the organisation; (b) the ability to work on a team, including the ability to establish good communication with all interested parties in the organisation; and (c) extensive knowledge of the quality profession. They also said that there should be formal certification conferring a recognized diploma (i.e., Certified Quality Engineer or CQE) ([Gitai, 2001](#Gitai)).

The quality manager’s role is to plan and implement control and quality activities, while managing and collaborating with staff in documenting and maintaining organisational quality standards. The role is not only to uphold these and other standards, but to establish and maintain continuous and constant communication with the organisation’s employees, lead participation in the maintenance of quality standards, document the quality system’s activities, and conduct quality control to evaluate working methods and identify problems. Thus, the role of the quality engineer in most organisations requires ‘soft skills’ ([Blades, Fauth and Gibb, 2012](#Blades)).

There is no uniqueness attributed to the required knowledge and, therefore, the quality engineer’s authority stems not from a regulating body but solely from the norms and practices within the employing organisation. The status of a quality engineer is determined by the individual’s level of professional knowledge in the field of quality and the extent to which the managers of the employing organisation perceive the individual as a professional.

Unfortunately, not many managers think carefully or deeply about quality engineers and their contribution to the organisation. Even today, there are organisations in which the quality manager’s role is neither a full-time nor a standalone position; instead, it is integrated with an additional role. Some organisations (especially small- and medium-sized ones, which account for a large proportion of the total) outsource quality issues. This has led to a situation where there is no correlation between the skill of an individual quality engineer and his or her success within the organisational culture. This tension, in the authors’ opinion, stems from the low status accorded to quality engineering, which inhibits its institutionalization and prevents it becoming a field where only highly qualified and certified individuals are practitioners.

Globally, the profession of quality engineering and management has not yet been defined ([Abbott, 1988](#Abbott)). It is regarded as a ‘profession in the making’, that is, an area still building a clear identity as a professional field of endeavour and attempting to construct the sociological foundations that characterize professionals and provide the basis of their demands for recognition and legitimacy. The lack of institutionalization of the quality profession stretches the boundaries of acceptable standards and safeguards, and this facilitates unethical behaviour by organisations in the field of quality. Furthermore, errors are far more likely when knowledge and understanding of quality are not standardized across a profession and when the public interest is not regarded as a decisive factor in the decision-making of organisational entities.

In Israel, the stringent requirements of quality standards and the tightening of customer requirements have prompted organisations to appoint quality engineers, even when not required to do so. In general, quality systems that are applied in organisations usually operate according to a matrix system. A variety of measures are applied, some of them managerial, others technical or engineering-oriented. Typically, an organisational quality manager and/or a quality engineer are responsible for implementing the requirements of the quality system and ensuring excellence in the organisational units, where, in most cases, theoretical knowledge and qualifications are required. In this context, the quality engineering profession in Israel has grown almost without intervention from the establishment and without the influence of academic experts.

# PROFESSIONAL AUTHORITY

## Epistemic authority

In his book *Economy and Society*,Max Weber (1947) offers a distinction between power (*Macht*) and domination/authority (*Herrschaft*), which is crucial for answering this question. The lack of consensus on how *Herrschaft* should be translated into English is indicative of the controversy about some of the issues of legitimacy. That is, authority is the ability to instruct people to perform a particular action and respond in the affirmative without hierarchical dependence. Talcott Parsons offered one of the first—at that time still incomplete—translations of *Economy and Society* into English.

This definition is appropriate for the position of a quality manager whose degree of success in the position does not depend on his authority but relies heavily on the management's support for him and the behaviour of all stakeholders in the organisation.

The authority of professionals derives from the expert knowledge they acquire, Knowledge is used by members of a profession as a source of moral, public, and social authority by virtue of the uniqueness and preservation of the knowledge and power they have attained ([Abbott, 1988](#Abbott)). The members of the profession unite into a group (a professional community) in which communication takes place among the members. The granting of professional authority is intended to give control and supervisory powers to experts.

Professionals enjoy control and autonomy in professional decision-making in their work ([Freidson, 1983](#Freidson1983); [Abbott, 1988](#Abbott)) in exchange for a commitment to provide the company (or, more broadly, society) with high-quality work and, where necessary, to demonstrate a service orientation.

Abbott (1960) argues that, to date, there is no uniform pattern of development for a professional. Nevertheless, it can be said that every professional needs the public’s trust, and the more unique the occupation, the more likely it is that the profession as a group will lobby for laws that are exclusive to their professional practice, to ensure that their work is perceived as lawful and is accorded legal rights and independence ([Abbott, 1988](#Abbott)).

Abbott (1988) described three arenas in which various professional groups work to validate and promote their claims to being members of a full-fledged profession: the legal arena, the public arena, and the place of work. In Israel, the authority of recognized professionals is anchored in a set of laws (such as the Engineers and Architects Law of 1958 and the Bar Association Law of 1961). Each of these laws uses a different method to define the uniqueness of the profession concerned, and the legislatures and the courts set different standards of performance as well as principles, restrictions, ethical prohibitions, and rules of conduct in line with the values deemed unique to the profession.

Abbott defined ‘professional jurisdiction’ in terms of social groups that claim exclusive authority (monopoly) over a particular job and differentiate themselves from other professions ([House, 1993](#House)). In this situation, the group’s work is seen as worthy and should only be performed by members of the profession, who, by virtue of their knowledge and authority, enjoy appropriate rights and independence ([Abbott, 1988](#_Abbott,_A._(1988).)).

Knowledge and competence in quality oversight can be acquired in two ways: (a) via a non-academic educational track, where the practitioner receives theoretical and practical training, along with practical tools; and (b) via an academic-scientific track, where the practitioner obtains general knowledge alongside the practical means to understand and execute the professional role and to apply professional insight. The authority given to professions based on the systematic professional knowledge acquired by their members varies by country and is not universal.

Some countries recognize the professions in their jurisdictions legally, and others recognize them without a regulator. In Israel, the authority of a profession is anchored in law. However, there is no law, in Israel or elsewhere, that defines the education that is required of a quality engineer.

Nevertheless, the importance of the role requires extensive knowledge of quality, standards, laws, and everything that is required for an organisation to meet all of these requirements in the best possible way.

## Organisational authority

Organisational authority refers to the hierarchy in a company from top-level management to entry-level employees. The levels of management that make up organisational authority include the operations-level, middle-level, and top-level management.

The degree of success of a quality engineer in a position does not depend solely on him or her, but relies to a great extent on the management’s support and on the behaviour of all employees in the organisation. They routinely experience difficulty in persuading management to work according to the methodology they recommend, and they deal daily with resistance to quality initiatives. As a result, they often have to capitulate to management or at least to broker a compromise. This is connected to the fact that the knowledge acquired by quality engineers during their training is based on outdated and irrelevant theories that are more applicable to the Second Industrial Revolution than to current organisational practices. The calibre of academic knowledge in the field of quality is not high, and studies carried out in that field are not accepted in academia as trustworthy ([Halevi, 2017](#Halevi)).

## Gaps in the authority of quality engineers

It should be emphasized that responsibility for product quality does not rest solely with quality engineers; it involves everyone who participates in the product’s preparation. The responsibility of quality engineers is to know the world of quality, standards, and laws so that the organisation can meet the relevant requirements optimally. In this sense, quality engineers deal with a variety of challenges characteristic of the professions: providing services rather than manufacturing products; creating and maintaining constant demand for the services they provide; and seeking to convince their clients that their services are necessary and cannot be provided by untrained or unqualified individuals.

When the quality engineer is not perceived as a partner in the organisation’s business success, stakeholders do not accord sufficient importance to the demands of the quality engineering unit or personnel. The cost of addressing problems after a product or project has been completed is higher than the cost of preventing problems in the pre-production stages.

Past and present quality engineers would agree that, as professionals, they might have the knowledge to do their job, but often do not have the authority to do so. As noted, some organisations appoint employees who lack these qualifications; likewise, some organisations do not ensure that the quality engineer has sufficient authority to carry out the role properly.

 This lack of adequate authority granted to quality engineers can be explained in great part by the institutional theory, a prominent approach in contemporary organisational research ([David, 2015](#David)). Developed as a sub-theory within the field of the sociology of organisations, the institutional theory seeks to explain why organisations and institutions adopt certain procedures, laws and arrangements, as well as how these adjustments are embedded within the organisations. The circumstances under which a professional group develops usually are determining factors in how it is subsequently perceived and treated. In the case of quality engineering, several serious product defect debacles in the United States and elsewhere resulted in regulations and in the perception that the use of quality engineers could help solve the problem and prevent such breakdowns in product quality. Given this background, institutional theory’s analysis involving coercive or normative isomorphism regarding political or organisational pressure and professional values, respectively, may provide insights into the development and growth of the field of quality engineering; governments mandated such positions, and ‘good organisations’ created quality engineer positions as a result. The institutional theory emphasizes that organisations must conform to organisations’ rules and requirements if they are to receive support and be perceived as legitimate. The institutional theory also addresses the processes by which structures, including rules, norms and routines, become established as authoritative guidelines for social behaviour ([DiMaggio & Powell, 1983](#DiMaggio1983); [Powell & DiMaggio, 1991](#Powell)), and in many cases, the resulting behaviour and attitudes expressed toward fully proficient quality engineers prevent them from performing their duties appropriately. This is because they are often perceived in their organisations as responsible merely for certification (ISO, client, etc.) rather than as professionals in their field and as partners in the organisation’s business success. In this situation, the other areas of opinion in the organisation do not attach much validity to the requirements of quality managers, which makes it difficult for quality professionals to operate. A large pharmaceutical company was ‘forced’ to recruit a quality manager. His staff did an excellent job, but on the floor of the manufacturer, the professionals knew that there was not necessarily any validity to what people would promise to do. It turns out that the professionalism and expertise of a quality engineer, in addition to his or her authority, are not fixed and uniform. The hierarchical structure is not clear, which often causes tensions and conflicts even in factories where an orderly quality system operates

# EMPIRICAL RESEARCH

## Methods

The empirical part of this study combines two research methods. In-depth interviews were conducted with seven key quality personnel to explore how they perceive their roles, and a questionnaire was used to examine the professional authority of the quality engineer in light of the two senses of professional authority (epistemic and organisational authority) discussed above.

The interviews, which were recorded by the researcher, were semi-structured, and most of them lasted an hour to an hour and a half. Each interview opened with a presentation by the research editor to explain the purpose of the research and its structure. Since the aim was to create an atmosphere of complete openness in which the interviewees would feel comfortable, the researcher summarized the interview data in writing and invited the interviewees to check whether the summaries were accurate. All the interviewees gave their full consent to participate, and their responses constitute a significant contribution to the study.

The interviews were transcribed, coded, and subjected to thematic content analysis to identify patterns within the data and to reveal aspects that emerged in dialogue with the study participants ([Braun and Clarke, 2006](#Braun)). The content analysis used summaries of quality-peer meetings and interviews, and it focused on thematic analysis with reference to the visible and hidden layers of each text.

So that they could challenge the content analysis of the interviews and verify the credibility of the conclusions, the data analysis partners were chosen for their knowledge and experience in qualitative content analysis, although not necessarily in the quality field.

The questionnaire[[1]](#footnote-2) was constructed on the basis of the findings of the interviews and the literature, and its focus was the expertise and authority of the quality manager. Accordingly, it was divided into three parts: items examining the perception of the job, its structure, and its limits from the point of view of those involved in quality; items examining the perceptions and expectations of the quality practitioner regarding their roles within a professional field of knowledge; and items collecting background data.

The questionnaire was administered from November 2015 to April 2017 in an email link sent via the Qualtrics system to potential participants who are quality engineers and managers registered in the ISQ database and who attend the main quality conferences. The ages of the participants ranged from 35 to 73, with and. They were chosen from the database of the Israeli Quality Association.As a non-probabilistic sample was used, it should be noted that the sample is not necessarily representative of all those involved in quality.

Nevertheless, the use of the questionnaire gave the study uniformity, as the participants were asked the same questions in the same order, and the closed nature of the items made it possible to draw meaningful comparisons between their responses. The data analysis was performed using SPSS statistical software.

The value of 0.906 for Cronbach’s alpha (which measures the correlation between different items belonging to a particular index in the questionnaire) indicates good reliability and consistency for the questionnaire, linking the statement of reliability to variables related to moral authority (expertise, authority, and work according to professional ethics). Because the use of linear regression would not enable the research questions to be answered, and because the sample size (n = 85) was smaller than the minimum sample size (n = 385), structural equation modelling (SEM) in AMOS software was used. Reliable results were obtained compared to those that would be obtained from regression analysis, and the analysis allowed us to examine the variables ‘expertise’ and ‘authority’.

## Findings

### The knowledge and qualifications of quality engineers

 We find that the quality is managed by a quality engineer, a professional whose field of responsibility is flexible and whose training is very broad.

In terms of accreditation, the data collected in the present study indicate that most of the respondents believe that the position of quality engineer must require a certificate that attests to his or her practical knowledge and professional tools. The interviewees differed as to the type of training required for the job, with some favouring internal training, and others favouring certification.

Indeed, 62% of the respondents who answered the quantitative questionnaires agreed moderately with the statement: ‘The quality function requires a lot of professional knowledge [...] that is consistent with the organisation’s business environment’. All interviewees claimed that a quality engineer needed knowledge, and that if quality managers possessed knowledge, expertise and authority, they could reduce the occurrence of non-quality events such as those that occurred in recent years.

Regarding the accreditation that a quality manager needs, the data collected in the quantitative section indicate that most respondents think that in order to ensure that a quality manager provides benefit to the organisation, the position must require a certificate that attests that the candidate possesses practical knowledge and professional tools.

About 90% of the respondents agreed to a large extent that ‘it is important to appoint a suitable person for the quality position, to train and empower as a professional’. Sixty-two percent of the respondents agreed to a large extent that ‘the quality of the job should be conditioned by an academic degree in engineering /science / quality’. Approximately 65% of the respondents agreed to a large extent that ‘certification for the position (Israeli / American quality engineer) provides practical knowledge and professional tools at a reasonable time’. About 84% of the respondents agreed to a large extent that ‘professional and theoretical professionalism requires long-term training that includes support, continuous training and specialization’. Furthermore, approximately 89% of the respondents agreed to a large extent that the ‘expertise’ value describes its function as experts in the field of quality.

All the participants in the qualitative and quantitative parts of the study agreed that a quality engineer should have accreditation (among other characteristics). For example, Ekroni (2012) explained that, in principle, ‘in order to ensure that a quality engineering will benefit the organisation, the position must be conditioned by accreditation. This means that the qualification will provide him with practical knowledge and professional tools for a reasonable time’.

### The authority of the quality engineer

The quantitative findings show the great importance of granting autonomy to the quality engineer. It was found that, in business organisations, there is a link between the variables of authority and expertise:

Sometimes the lack of expertise of a quality assurance engineer undermines her authority and, hence, her ability to act independently. In addition, there is oftentimes a real contradiction between adherence to quality values (the ethics of those dealing with quality) and the organisation’s cost-effectiveness (Moshe Ekroni).

All the interviewees argued that in light of the differences in the knowledge of those dealing with quality, the quality engineer needs the authority to ensure that recommendations are accepted by the organisation and its employees, and to ensure that all areas of knowledge in the organisation cooperate with each other. When the participants were asked to characterize the work of the quality engineer, they attributed a high level of important to the value of ‘authority’ (45%). This means that they believe that this important component is often absent from the work of the quality engineer. However, according to some interviewees, the quality engineer is often forced to participate in power struggles within the organisation:

Keep in mind that the goal of the organisation is profits. Quality is not always at the top of the order. Sometimes you’re forced to disqualify products (even if the potential profit is high) that do not meet the specifications. Employees do not always maintain the quality chain when there is a fundamental conflict between efficiency and profits to quality.

The role of quality is sometimes perceived as a ‘delaying’ job in the organisation, and the inherent tension between operation and quality contributes greatly to this. (Liat Milo).

The interviewees disagreed about the nature of the body that should grant authority to quality engineers.

Some (Amnon Margalit, Dr Avraham Huli, Dov Peri, and Haim Kornfeld) thought that the authority should be given by a regulator, and others (Moshe Ekroni and Liat Milo) felt that the professional organisation should help management of the employing organisation to encourage the building of a supportive organisational culture.

The questionnaire responses also suggested that professionalization in the field of quality should confer on its practitioners a ‘collegial authority’ of the type that exists in other recognized professions (such as medicine, law, and academia).

### Tensions and conflicts in the role of the quality engineer

Some of the interviewees (Dov Peri, Haim Kornfeld, Liat Milo, and Moshe Ekroni) noted the existence of limitations and barriers to the job. Others said that the restrictions and barriers depend on the organisation (Amnon Margalit) and whether, for example, it prioritizes marketing at the expense of quality.

For example, Amnon Margalit said, ‘I often experience a clash between the realization of quality solutions and the time of delivery of a system to the customer’. These barriers can limit his authority and impair his ability to perform his duties as a partner in the organisation’s business success.

As for the claim of duality in the quality manager’s role (in relation to the organisation versus the customer), the interviewees agreed that, although quality engineers themselves do not see a duality, other stakeholders insist that it exists. Quality engineers see their role as helping to sustain the organisation.

From the interviews, it emerged that a quality engineer must adapt procedures and work instructions to regulations and standards, and must make these accessible to all other employees through management.

Sometimes the achievement of this goal is thwarted by the quality engineer’s lack of knowledge, and sometimes by a lack of authority that results in the non-cooperation of other workers with the quality engineer:

Failure to address quality in one of the organisations caused financial losses, due to the lack of expertise of the quality manager. In an appeal to another quality engineer in the same organisation to examine the problem and try to help, a lack of cooperation with the stakeholders was found, which made the decisions negligible (in my opinion, an excess of ego and blame).

 Cooperation was only reached after the workers realized that they were beginning to lose their jobs, which eventually led to the resignation of the CEO. (Dov Peri)

A few years ago, I initiated and led a comprehensive organisational analysis of one of the business divisions, and this was not welcomed because I pointed out [that] resolving problematic issues (in my opinion) would cause significant changes. After the management understood the value of the process, it mobilized and made changes across the division in order to address a significant portion of the issues that arose (Moshe Ekroni).

The analysis of the interviews therefore supported the insight that the degree of expected success of the quality engineer is related, among other things, to the way in which authority is given to him and how authority is perceived by other stakeholders.

## Discussion and Conclusions

This study examines the professional status of quality engineers based on the experience of quality practitioners as professionals in the context of two key terms: expertise and authority. On the one hand, the professionalism and expertise of the quality engineer are neither fixed nor uniform; on the other hand, the authority of the quality engineer in the hierarchical structure is unclear.

The following is the confirmation of the hypothesis. **The knowledge and qualifications of quality engineer:**we find that the quality is managed by a quality engineer, a professional whose field of responsibility is flexible and whose training is very broad. In terms of accreditation, the data collected in the present study indicate that most of the respondents believe that the position of quality engineer must require a certificate that attests to his or her practical knowledge and professional tools. **The authority of the quality engineer:** There was agreement about the importance of granting autonomy to the quality engineer. It was found that in business organisations, there is a link between the variables of authority and expertise. Sometimes the lack of expertise of a quality assurance engineer undermines his or her authority and, hence, his or her ability to act independently. The interviewees disagreed about the nature of the body that should grant authority to quality engineers. **Tensions and conflicts in the role of the quality engineer***:* Some of the interviewees noted the existence of limitations and barriers to the job. Others said that the restrictions and barriers depend on the organisation. These barriers can limit his or her authority and impair his or her ability to perform their duties as a partner in the organisation’s business success.

The activities mentioned as falling within the scope of the role of the quality manager— promoting quality and excellence in the organisation; instilling a culture of quality among all stakeholders; leading change and improvement, with an emphasis on changes in process infrastructure and management routines; and taking responsibility and authority to bring significant added value to the organisation—can be understood as what Giddens (1984) characterized as conscious actions carried out by agents that cause a change in the social structure through the process of construction.

Giddens’ structuration theory (1984), the basis of our research model, assumes that the agents who carry out the processes are internally motivated and aware of the results they seek to achieve through their actions. In the case of quality engineers, structuration could be the result of their becoming structurally stuck in roles peripheral to actual organisation activities, or alternatively, of their complete integration into the organisational apparatus. Presumably, the occupational group would prefer the latter.

Quality engineers work within a wider team of professionals with the overall aim of ensuring that the final products are safe, reliable, and meet customer expectations, while keeping the manufacturing process as effective and cost-efficient as possible. Quality engineers work with various stakeholders at every stage of the manufacturing process to ensure that the processes and products that result from them are of consistent and high quality. The lack of quality can reduce the company’s profitability, such as in the case of a recall of a product.

The characteristics of Israeli society cause other stakeholders to challenge the quality manager’s opinion, thereby impairing the performance of the quality manager’s duties, limiting his or her authority, and demonstrating a lack of willingness to acknowledge him or her as a partner in the organisation’s business success. These deficiencies often cause tensions and conflicts between the quality engineer and other stakeholders in the organisation.

When they were told that, according to the literature, the granting of professional rights and recognition of quality engineering expertise is the means to strengthen the status of those engaged in quality and ensure that they have the authority they need ([Abbott, 1988](#Abbott)), not all of the interviewees agreed. Some believed that authority should be given to quality practitioners by the regulator, granting them the status of professionals. However, others thought that authority should be given by the workplace. Both the interviews and the survey responses show that the status of a ‘profession in progress’ prevents quality engineers from being recognized as experts in their field and creates tension between expertise and authority. This situation requires every quality engineer to establish their own status in the employing organisation based on the relationships they build with interested parties.

This can be a lengthy process, especially as carrying out the duties of a quality manager, however effectively, does not usually produce immediate results.

The research assumption of the present study, in line with the literature, is that many professions define requirements for training, education, and qualifications in order to distinguish between workers with general qualifications, practical knowledge, and experience and those with certified qualifications, theoretical knowledge, and higher education in the field. Training requirements are often a condition of engagement, and violation of those requirements may be accompanied by sanctions prescribed by law to maintain social order ([Giddens, 1984](#Giddens)).

However, not all of the concepts that Giddens presented are consistent with the findings of this study. For Giddens, the social system differs from the social structure in that, while the social structure is amorphous and constantly changing in space and time through the action of agents, the social system is constant in time and space and cannot be changed. In addition, while the action of the individual is embodied at a certain point in time of the social structure, the system is a separate entity from the agent, and it is influenced from the outside.

In terms of quality practitioners, the nature of the quality manager’s role in all organisations is constant and involves carrying out measurement and evaluation tasks and tasks aimed at making the company profitable. This activity varies from one organisation to another, and is, therefore, not carried out consciously or automatically. No uniform rules (behavioural structure) are created. It is routine activity that creates the social structure, and the social structure limits the individual’s behaviour because it is based on the laws of behaviour ([Giddens, 1984](#Giddens)).

It should be noted that the interviewees believe that a professional society should act to improve the quality engineer’s position of authority, helping the management of organisations to internalize the importance of quality management and to promote a supportive organisational culture. A further suggestion was that professionalization of the field of quality would give practitioners in the field ‘collegial authority’ similar to that enjoyed by the professions (medicine, law, engineering, etc.) ([House, 1993](#House)).

## Practical Implications

Being a quality engineer requires mastery of professional and organisational knowledge and skills. If those engaged in the field undergo long-term training and dedicated specialization, they will be able to carry out their duties effectively. The boundaries of the position will become clear, and there will be a justification for recognizing and institutionalizing the profession on a national level throughout the world.

However, the findings of this study show that the quality profession is perceived in an overly broad and general manner that fails to distinguish between different areas of quality. We therefore believe that further research is required regarding the influence of expertise on the authority of a quality engineer in all areas of knowledge.

 Such research would contribute significantly to advancing our understanding of the issue and would encourage industry leaders to act according to clear policies and systematic methodologies.

**Limitations**

The present study has limitations that prevent the generalization of its conclusions to everyone dealing with quality in Israel and internationally. First, the respondents were not selected at random from the population, but were volunteers who responded to contact. Second, the sample in the quantitative part of the research was homogeneous in several respects; all the respondents were veteran quality practitioners, and almost all were members of the Israeli Quality Association, which affects their position in the field. Finally, it should be noted that the research was conducted over a period of two years, during which changes may have occurred that are not reflected in the findings.

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