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THE USE OF MICRO-CREDENTIALS IN THE PROFESSIONAL DEVELOPMENT OF HEALTHCARE WORKERS ON THE EXAMPLE OF THE PROFESSIONAL GROUP OF MEDICAL SECRETARIES

Agnieszka ROGALSKA[1*], Łukasz KOSIŃSKI[2]

[1] Dr Jan Biziel University Hospital No. 2 in Bydgoszcz, Hospital Management Board; agnieszka.rogalska@biziel.pl, ORCID: 0009-0004-2983-468X
[2] Dr Jan Biziel University Hospital No. 2 in Bydgoszcz, Hospital Management Board; lukasz.kosinski@biziel.pl, ORCID: 0000-0003-4923-5604
* Correspondence author

Purpose: The aim of this article is to identify and evaluate the potential of micro-credentials as a tool supporting the development of healthcare professionals' competencies. The study analyses the pilot implementation of a micro-credential system in a Polish healthcare organization and its use in designing a career pathway for medical secretaries. The analysis covers organizational and competence-related conditions, as well as potential benefits for the institution and its staff. An original element is the formulation of practical recommendations for other healthcare organizations, derived directly from the pilot experience.
Design/methodology/approach: This is a qualitative study conducted as a case study. The analysis focuses on designing and implementing a micro-credential system at Dr Jan Biziel University Hospital No. 2 in Bydgoszcz. The empirical material comprises the analysis of organizational documents, observation of the implementation process, and reflections from the implementation team. The study focuses on identifying competence needs, designing career pathways, and methods of validating competences using digital micro-credentials compliant with the Open Badges standard.
Findings: The results of the pilot scheme indicate that micro-credentials can serve as an effective tool for competence management within healthcare organizations. Their implementation has made it possible to streamline the career development path for medical secretaries, increase the transparency of competence assessment criteria, and boost staff motivation to acquire new skills. An additional outcome was greater standardization of work, as well as improved planning of training and the induction of new staff.
Research limitations/implications: The study is based on a single pilot case, which limits the extent to which the findings can be generalized to the entire healthcare sector. Furthermore, observations regarding the impact of micro-credentials on the quality of patient care require further quantitative analysis.
Originality/value: This article presents the first case in Poland of the practical application of micro-credentials within a healthcare organization and proposes a model for their use in the competence management of administrative staff in the medical sector. Based on the experiences of the pilot scheme, recommendations have also been formulated for other institutions planning similar implementations.

Keywords: micro-credentials, professional development, healthcare, competencies, career pathway.
Category of the paper: case study.

1. Introduction

The healthcare sector is one of the most diverse sectors of the labour market – both in terms of the range of services provided and the structure of employment. It comprises highly formalized professions, the practice of which requires specific education, passing a state examination and, often, registration with the relevant professional body. This applies, for example, to doctors, nurses and midwives, physiotherapists and pharmacists (Paszkowska, 2024; Kolankiewicz, 2024; Górski, Grassmann, Sarnacka, 2019). At the same time, healthcare organizations employ numerous professionals performing administrative and support roles whose competency requirements are less clearly defined.

In this context, the distinction between qualifications and competences takes on particular significance. Qualifications refer to formally recognized learning outcomes, such as diplomas or certificates of course completion. Competences, on the other hand, encompass the ability to apply knowledge and skills in practice. In the rapidly changing healthcare environment – shaped by digitalization, regulatory changes, rising patient expectations and the growth of interdisciplinary work – it is competences that largely determine the quality of care and organizational efficiency. Competency management enables a better match between staff and their professional roles, the creation of clear career pathways, the reduction of staff turnover and the enhancement of patient safety; from an employer's perspective, it facilitates more effective human resource management and the implementation of innovative organizational solutions.

The problem of poorly defined responsibilities is particularly evident in administrative roles within the healthcare sector. One such role is that of the medical secretary, whose importance – in the context of the digitalization of the healthcare system, support for medical staff, and patient contact – is steadily growing. Despite the significant importance of this role in the day-to-day operations of healthcare providers, the legal regulations governing this profession remain limited. In the Polish legal system, the primary reference is the Regulation of the Minister of Family, Labour and Social Policy of 21 October 2025 on the classification of occupations and specializations for the purposes of the labour market (2025) which assigns this position the occupation code 334402, as well as the Regulation of the Minister of Health of 10 July 2023 on the qualifications required of employees in specific types of posts in healthcare entities that are not commercial undertakings (2023). This document sets out the minimum qualification requirements at secondary education level and appropriate vocational

training, with at least five years professional experience required for the post of senior medical secretary.

These formal regulations are supplemented by job descriptions available via the Job Description Search Engine on the Public Employment Services Portal (psz.praca.gov.pl, 2026), and materials developed as part of the InfoDoradca+ project (psz.praca.gov.pl, 2026). These outline the wide range of duties of a medical secretary, including maintaining medical records, operating IT systems, organising the work of a clinic or ward, communicating with patients and cooperating with medical staff. The importance of soft skills, such as communication, resilience to stress, accuracy and responsibility, is also emphasised. At the same time, the lack of detailed competency standards means that requirements for staff may vary between organisations, and even between organisational units within the same institution, which makes it difficult to establish consistent career development pathways and to objectively assess readiness for work.

Micro-credentials are the response to the need for a more flexible and transparent way of validating skills. They can be defined as digital documents confirming the achievement of specific learning outcomes in a given competence area, most often obtained through short, modular forms of education whilst maintaining clearly defined assessment criteria and verification options (Mitchel, 2025). This solution aligns with the concept of lifelong learning and the growing need for flexible documentation of competences in the context of dynamic changes in the labour market. Micro-credentials can be collected in a user's digital portfolio, which enhances their usefulness in recruitment processes and in documenting professional development, as well as enabling the presentation of skills in a digital environment. According to Min-Sui (2025), individuals holding micro-credentials demonstrate 62% greater visibility of their competences to employers and receive 41% more new job offers. A key element of the credibility of micro-credentials is a technical standard that enables their verification. One of the most widely used solutions is the Open Badges standard, which allows metadata regarding the issuer, assessment criteria and verified competences to be embedded within a digital badge (Michalik, Felczak, 2022). As a result, a micro-credential becomes not only a symbol of achievement, but also a carrier of transparent information about the learning process in a unified, international standard (Lok, 2022).

In the Polish context, the Educational Research Institute – a state research institute – plays a significant role in the development of this approach through its systemic project „Micro-credentials – a pilot of a new solution supporting lifelong learning" (https://ibe.edu.pl/pl/opis-projektu-mikroposwiadczenia, 2026). Its aim is to develop standards for the design, issuance and collection of micro-credentials, and to verify their practical usefulness in formal and non-formal education. A key element of the pilot is the Odznaka+ app, a tool for issuing and storing digital badges compliant with the Open Badges standard (https://odznakaplus.ibe.edu.pl, 2026). Each badge contains a set of metadata including, amongst other things, a description of competences and learning outcomes, criteria for their

verification, information about the issuing institution, the date of issue, and the badge's graphic identification (Nowakowski, Stęchły, 2021). This solution forms part of a broader concept of creating reliable methods for documenting competences, which can complement traditional qualifications and support individual career development paths (Gamrat, Zimmerman, 2021).

The case study describing the experiences of Dr Jan Biziel University Hospital No. 2 in Bydgoszcz, which took part in a pilot project run by the Educational Research Institute – National Research Institute (IBE-PIB), concerning the use of micro-credentials as a tool for verifying competences and building a career development pathway for medical secretaries, highlights the possibility of implementing a system that would manage the career development of this group of employees and enable a more objective assessment of their competences. An innovative aspect of the presented research is the experience gained from the pilot project and the practical recommendations formulated on this basis for other healthcare providers, which may support improvements in the quality of patient care and organisational efficiency.

2. Methods

This article employs a qualitative research approach based on the case study method. The subject of the analysis is the case of Dr Jan Biziel University Hospital No. 2 in Bydgoszcz, which was the first healthcare institution in Poland to implement a micro-credential system in the process of competence management and career development planning for medical secretaries. This implementation was carried out as part of a nationwide pilot project led by the Educational Research Institute – a State Research Institute, the aim of which was to test the potential for using micro-credentials in various sectors of the labour market.

The research process comprised three main stages.

The first stage was a competence needs assessment, the aim of which was to identify the actual competence requirements associated with performing the role of a medical secretary. As part of this stage, an analysis was carried out of the organisational and management documents in use at the healthcare facility, including strategic documents, internal regulations, job descriptions and role specifications. A key element of the analysis was a comparison of formally defined job duties with the tasks actually performed in medical secretariats, which enabled the identification of areas requiring clarification or supplementation in the competency model.

The second stage involved developing a professional development model comprising a four-stage career path for medical secretaries. Based on the findings of the assessment, a set of micro-credentials was defined, corresponding to successive levels of professional development and linked to specific professional competencies and organisational requirements arising from the specific nature of the healthcare provider's operations.

The third stage involved a pilot implementation of the designed solution and the monitoring of the process for validating employees' competences. This process utilised digital badges compliant with the Open Badges standard, enabling the digital documentation of acquired competences. The awarding and management of micro-credentials was carried out using the Odznaka+ application, an IT tool supporting the implementation of micro-credential systems.

The empirical material used in the study comprised several complementary sources of qualitative data. The analysis was based on project documentation relating to the implementation of micro-credentials, including materials concerning the career development pathway for medical secretaries and the tools used in the process of assessing and validating staff competencies. An additional source of data was the observation of the system's implementation process within the hospital's organisational environment, expert consultations with members of the implementation team, and the authors' experiences resulting from their direct involvement in the pilot project.

The use of the case study method enabled an in-depth analysis of the process of designing and implementing an innovative solution within the specific organisational context of a healthcare provider. This allowed for the identification of factors conducive to the implementation of the micro-credential system, as well as the organisational and competence-related barriers associated with this process. The results obtained formed the basis for formulating conclusions and practical recommendations regarding the potential use of micro-credentials in the management of healthcare sector staff competencies.

3. Case study description and Results

3.1. Needs assessment and Project Baseline

The project to introduce micro-credentials as a tool to support the professional development of medical secretaries began with an in-depth analysis of the organisation's competency needs. The diagnostic phase involved an analysis of the tasks actually performed by medical secretaries, taking into account differences between individual organisational units, the identification of critical points in the patient care process, an assessment of information security requirements, and an analysis of the digital skills necessary to work with the IT systems in operation at the hospital.

The assessment carried out showed that micro-credentials can fulfil three complementary functions within an organisation. Firstly, a validation function, providing reliable proof of specific competencies. Secondly, a development function, enabling the establishment of a clear pathway for employees' further professional development. Thirdly, a management function, supporting human resource management through the planning of competence development, training and potential promotions.

In order to put the agreed principles into practice, the Director issued an order establishing the Hospital Staff Competency Mapping Team (Director of the University Hospital No. 2, 2025a). The team analysed staff records, including job descriptions and scope of duties, and subsequently developed a preliminary career development model aimed at making more effective use of staff potential. The principles of a responsible HR policy, encompassing transparency in recruitment and promotion processes, access to professional development programmes, and the systematic enhancement of staff competencies, were simultaneously incorporated as one of the operational objectives into the Hospital's Strategic Plan for 2025-2030 (Rector of NCU, 2025; Director of the University Hospital No. 2, 2025b).

One of the key conclusions drawn from the analysis was the need to integrate the team of medical secretaries under a single organisational structure. This solution enables systematic management of skills development, training planning, the implementation of work standards, and the streamlining of the onboarding process for new employees.

3.2. Designing the professional development pathway

A key outcome of the team's work was the design of a four-stage career development pathway for medical secretaries, which clarifies competency expectations and facilitates training planning and progress assessment.

Stage I – Junior Medical Secretary (induction, up to 12 months).

Objective: induction, system basics, safety, communication and digital fundamentals.

Stage II – Medical Secretary (independence, approx. 2-5 years).

Objective: full independence in document handling and IT systems, and in patient care.

Stage III – Senior Medical Secretary (complex tasks, supporting others).

Objective: greater responsibility, improvement initiatives, reporting, handling difficult situations.

Stage IV – Senior Medical Secretary – Mentor (developmental role, work standards).

Objective: mentoring, training new staff, designing efficiency-enhancing solutions, establishing work standards.

In parallel with the development of the career progression pathway, new job description sheets and new templates for job descriptions were drawn up, ensuring compliance with applicable legislation and internal regulations (Director of the University Hospital No. 2, 2025c).

A key objective of the project was to create an inclusive model that would support both new recruits and staff with many years of professional experience. As a result, the solution can serve as a common framework for competence development — facilitating the adaptation of new staff whilst organising and validating the competencies of experienced staff. In line with the participatory working model preferred by the Hospital Management Board, the developed career development pathway, requirements and supplementary documents were consulted with a team comprising four employees holding the position of medical secretary/senior medical

secretary, all with many years of experience. On the one hand, this allowed the developed model to be tested against the day-to-day practice of those in such roles; on the other hand, it secured the first advocates for the planned change, in line with change management theory.

3.3. Competency assessment and definition of micro-credentials

In the next stage of the project, work began on defining a set of micro-credentialss corresponding to the four stages of a medical secretary's professional development. Each micro-credential was described in a systematic manner, in accordance with the templates provided by IBE-PIB – the required skills, methods of verification, estimated workload, types of acceptable evidence and quality assurance principles were specified. It was agreed that each level of development would be validated by a set of four key competences (badges), which together form a coherent job profile.

Micro-credential: JUNIOR MEDICAL SECRETARY

1. Explains the basics of how the healthcare system in Poland works.
2. Maintains records in IT systems at a basic level.
3. Administers first aid.
4. Communicates with patients and staff using a variety of methods and techniques in accordance with applicable legislation, including the area of personal data protection – basic level.

Micro-credential: MEDICAL SECRETARY

1. Applies legislation and quality standards applicable in healthcare in practice.
2. Archives medical records.
3. Works independently in IT systems.
4. Communicates with patients and staff using a variety of methods and techniques in accordance with applicable legal regulations, including those relating to personal data protection – advanced level.

Micro-credential: SENIOR MEDICAL SECRETARY

1. Implements improvement measures within their role and across the entire facility.
2. Carries out reporting and analytical tasks relating to the unit's activities, as well as accounting processes.
3. Carries out public relations activities and promotes the facility's brand.
4. Has the ability to resolve difficult and conflictual situations in relations with patients and staff.

Micro-credential: SENIOR MEDICAL SECRETARY – MENTOR

1. Manages the implementation of the medical secretary's career development pathway.
2. Plans and implements activities supporting professional development.
3. Develops their own mentoring and professional competencies.
4. Provides mentoring and gives constructive feedback.

A key principle of the adopted model was to move away from treating participation in training as sufficient proof of competence development. Instead, the focus was on verifying actual learning outcomes. Depending on the type of competence, methods used included work observation, assessment interviews, knowledge tests, practical exams, simulations of professional situations, and monitoring of professional activity. This approach is consistent with the concept of micro-credentials, which are awarded only after clearly defined quality criteria have been met and the learning outcomes achieved have been confirmed. A digital visualisation of the micro-credentials obtained is shown in Figure 1.

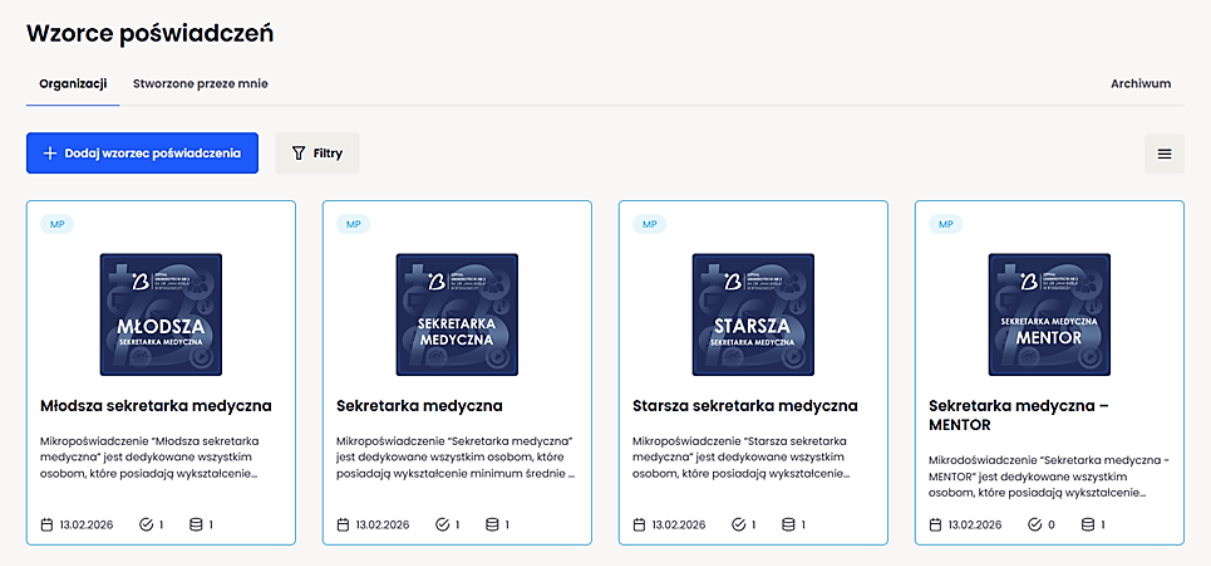


Figure 1. The digital visualization of obtained micro-credentials.

Source: Hospital materials available in the application https://odznakaplus.ibe.edu.pl/

3.4. Implementation experiences and organizational observations

Once the micro-credentials had been defined and approved by IBE-PIB, the actual implementation phase began, involving the validation of staff competences using digital badges. This process marked the transition from the design phase to the operational phase and involved the verification of learning outcomes, the documentation of achievements, and the creation of individual staff competence profiles.

To ensure organisational consistency, an annual schedule for confirming the competences of medical secretariat staff was drawn up, enabling the process to be spread out over time and linked to the organisation's training plan.

An analysis of organisational experiences reveals that the micro-credential system has an impact both on the individual level of staff and on the functioning of the entire organization. These observations are consistent with previous studies highlighting the role of micro-credentials as flexible tools supporting the documentation of learning outcomes and lifelong learning in dynamic professional environments (Oliver, 2019).

At an individual level, the increase in employees' awareness of their own competencies was particularly evident. Participants in the process began to identify their skills more clearly and recognise their importance in carrying out their day-to-day work tasks. At the same time, professional development ceased to be viewed as a series of random training courses and began to function as a structured and plannable process. Clearly defined criteria for the validation of competences and the possibility of obtaining digital confirmation of learning outcomes helped to increase motivation for professional development and fostered a better understanding of the organisation's expectations for a given role. Consequently, the process of learning and upskilling has become more structured and linked to the organisation's actual needs. Similar effects have been described in earlier research, which indicates that micro-credentials can strengthen learner agency and support continuous professional development through transparent recognition of competencies (Brown et al., 2021; Gallagher, 2018).

The results of the pilot scheme also point to significant organisational implications of implementing micro-credentails. The use of uniform criteria for confirming competence has contributed to greater standardisation of the work of medical secretariats and the harmonisation of expectations of staff. The introduction of clearly defined assessment criteria and a schedule for confirming competence has made it possible to move away from ad hoc, discretionary assessments in favour of a more systematic approach to staff development. This has increased the transparency of human resource management processes, reducing the discretionary nature of assessments and strengthening the sense of organisational fairness. Clearly defined competency requirements, linked to specific stages of professional development, have also streamlined the process of onboarding new employees. In practice, the induction period has been shortened, as the scope of responsibilities and required skills has been clearly defined and assigned to specific stages of professional development.

Another significant aspect observed during the pilot project was a shift in the way competence assessment processes were perceived. The initial caution shown by some employees, stemming mainly from fears of a negative assessment, gradually subsided as implementation progressed. Earning further digital badges and a better understanding of the process's purpose helped build trust in the system and fostered a perception of it as a tool supporting development rather than a control mechanism. It is also worth noting that the implementation of micro-credentials contributed to greater employee engagement in initiating improvement activities. The increase in the number of initiatives reported indicates the development of an organisational culture based on learning and the active co-creation of change by employees. From a management perspective, the micro-credential system has also proved to be a useful tool supporting line managers in planning team development and identifying areas requiring training support. The results suggest that micro-credentials can play an important role in building more transparent and structured competence management systems within healthcare organisations.

4. Recommendations

The experience gained from the pilot implementation of the micro-credential system enables us to formulate a set of recommendations for healthcare providers considering the implementation of similar solutions in the area of staff competence management. An analysis of the project's progress indicates that the implementation of micro-credentials in healthcare organisations should be treated as a strategic process, linked to human resources management policy and the organisation's planning documents, rather than merely as a training initiative. This approach facilitates the sustainable integration of the micro-credential system into management practice and enhances its significance in employee competence development processes.

The first recommended stage of implementation is to carry out a competence needs assessment, involving an analysis of the tasks actually performed and the identification of key activities carried out in a given role. Mapping work processes and competences helps to avoid designing competence models that are detached from the organisation's actual operations and increases the relevance of the defined learning outcomes. In the context of healthcare organisations, characterised by highly complex organisational processes, this stage is of particular importance for ensuring the usefulness of the designed solutions.

Another key element is the use of a participatory approach in the design of the micro-credential system. Involving staff in defining competencies and describing learning outcomes allows for a better understanding of the specific nature of the work performed, whilst also increasing acceptance of the organisational changes being introduced. Staff participation also fosters a sense of shared responsibility for the system's operation and strengthens its legitimacy within the organisation.

Another prerequisite for the credibility of the micro-credential system is the development of transparent criteria for validating competences and the implementation of quality assurance mechanisms for the assessment of learning outcomes. The transparency of assessment procedures and the clarity of verification standards strengthen trust in the micro-credentials issued and enhance their significance in human resources management processes. In practice, this requires the establishment of consistent assessment principles, the assignment of responsibility for the validation process, and the assurance of the reproducibility of the procedures used.

Experience from the pilot project also points to the validity of a phased implementation of the micro-credential system. Starting implementation with a single selected professional group allows the adopted model to be tested in practice, potential organisational barriers to be identified, and adjustments to be made before extending the system to other areas of the healthcare provider's operations. This approach reduces implementation risk and facilitates the gradual development of the organisation's competence in managing the micro-credential system.

Linking micro-credentials to human resources management practices is also crucial to the sustainability of the implementation. Integrating the system with processes such as staff appraisals, training planning and the design of career development pathways ensures that micro-credentials become a practical tool for supporting skills development and HR decision-making. In this context, they can serve as a bridge between formal qualifications and the actual competencies required in the day-to-day operations of healthcare organisations.

5. Limitations and future research

The analysis was based on a single-case study, which limits the possibility of directly generalising the findings to the entire healthcare sector. The results presented relate to the experiences of a single healthcare provider participating in the pilot implementation of the micro-credential system, and the organisational specifics of the institution under study may have influenced both the course of implementation and the results achieved.

Conclusions regarding the impact of micro-credentials on the quality of patient care are preliminary and are based mainly on qualitative observations and an analysis of organisational practice. The experience gained indicates the potential for improving the consistency of administrative processes, particularly in the areas of patient communication, the circulation of medical records, and the reduction of organisational errors. However, a full verification of these effects requires quantitative research enabling a more objective assessment of the impact of the implemented solution on the functioning of healthcare providers, using metrics such as work efficiency, patient satisfaction levels, patient service time, and the quality of medical records.

Another significant limitation of the study is the relatively short observation period. Assessing the long-term effectiveness of the implemented system – particularly in terms of staff retention, internal mobility and the sustainability of organisational changes – requires analysis conducted over a longer time horizon. Only long-term observation of the system's functioning will allow for a reliable assessment of its impact on the effectiveness of organisational processes and the stability of the solutions introduced.

The presented case study is exploratory in nature and may serve as a starting point for further research into the use of micro-credentials in the healthcare sector. In the future, it seems particularly appropriate to conduct quantitative studies analysing the impact of micro-credentials on work efficiency and the quality of patient care, as well as their significance for staff retention and internal mobility.

It is also worth considering the possibility of applying micro-credentials to other professional groups within the healthcare sector, particularly in administrative and treatment support roles. Future analyses could be supplemented by comparative studies conducted across different healthcare organisations, enabling the identification of different models for

implementing micro-credentials and the assessment of their effectiveness under varied organisational conditions.

6. Summary

This case study demonstrates that micro-credentials can serve as a practical tool in the healthcare sector to support competence management and the planning of career development pathways, particularly for professional groups whose development is not fully formalised within traditional staff training and development systems. As part of the pilot project, a model was used in which the career pathway of medical secretaries was divided into successive stages of development, each linked to clearly defined and measurable competences verified by means of micro-credentials. This solution is consistent with the European approach to lifelong learning, which emphasises the importance of shorter, high-quality forms of validating learning outcomes, and an added benefit is the digital format of the certificates, which facilitates their storage and sharing.

The results of the pilot scheme point to positive outcomes at both the individual and organisational levels. Participants in the process demonstrated increased awareness of their competencies and greater motivation for professional development, stemming from clear assessment criteria and the opportunity to formally validate the skills they had acquired. At the organisational level, the implementation contributed to greater standardisation of secretarial work, harmonisation of expectations regarding staff, and streamlining of the onboarding process for new employees thanks to clearly defined competency requirements and the assignment of responsibility for implementation. This tool has also enabled managers to plan team development more objectively and identify areas requiring training support, whilst the increase in the number of improvement initiatives proposed by staff may indicate the emergence of a learning-based organisational culture.

The findings from the pilot scheme also form the basis for formulating recommendations for other healthcare providers considering the implementation of a micro-credential system. An analysis of the project's progress indicates that the effectiveness of this solution depends not only on the proper design of the micro-credentials themselves, but also on how they are implemented within the organisation. In particular, the following is recommended: linking the micro-credential system to the organisation's human resources management policy and strategic documents; conducting a thorough assessment of competence needs based on an analysis of tasks actually performed; involving staff in the process of designing competence models and describing learning outcomes; ensuring transparent and reliable rules for the validation of competences and the quality of the assessment process; and the gradual implementation of the system, starting with a selected occupational group. This approach

enables the adopted model to be tested in practice, potential organisational barriers to be identified, and implementation risks to be mitigated prior to its wider application within the healthcare provider's structure.

It should be emphasised, however, that the present study is a case study conducted within a single healthcare organisation and in relation to a single professional group, which limits the possibility of directly generalising the results to the entire healthcare sector. Furthermore, the analysis focused primarily on a qualitative assessment of the implementation process, without an in-depth verification of its long-term quantitative effects. Consequently, further research should include an assessment of the measurable outcomes of the implementation and an analysis of the potential for scaling this solution to other professional groups operating within the healthcare system.

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