

Working Paper

NZIS Registered Spatial Professional (RPSpatial) Certification

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Purpose	The purpose of this paper is to generate discussion and input into the proposed introduction of a new Registered Spatial Professional (RPSpatial) Certification under the NZIS , Surveying and Spatial).
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Section 1. Overview and Purpose

1.1. Overview

The NZIS is currently reviewing its RPSurv (Registered Professional Surveyor) certification, and is also looking to introduce a new RPSpatial (Registered Spatial Professional) certification to cater for the spatial members who are now served by the NZIS.

As RPSpatial is a new offering by NZIS, it is important that it has input, review and buy-in from members, affiliated organisations, and employers in the wider spatial industry. Certification is an ambitious goal, and may or may not be essential to NZIS's Spatial Professional member focus.

1.2. Purpose

This paper introduces the concept and initial thinking around the introduction of RPSpatial Certification, and provides a framework for discussion and input.

A key component of the introduction of a new Spatial Professional Certification for NZIS is understanding what spatial professionals and the spatial industry want and need, and what will add value and support uptake and buy-in. This will underpin the design of the RPSpatial certification programme if, indeed, it is seen as something the industry want.

Section 2. Background and Context

2.1. Context

2.1.1. What do we mean by ‘certification’?

The term ‘certification’ can be broadly used to describe a number of different activities and programs. As such, it is important to be clear what ‘certification’ means in terms of this working paper, and what it means in terms of indications, assurances, and ultimately, consequences.

For the purposes of this paper, we use the term ‘certification’ to describe **professional certification** – used to evaluate and indicate an individual’s professional and education background, competency, and understanding and adherence to professional behaviours.

This does **not** include:

- Spatial certificate or postgraduate certificate programs from educational institutes; or
- Technical certification for GIS software proficiency (e.g. ESRI technical certification).

2.1.2. Why have Professional Certification?

Professional certification refers to an endorsement by a professional agency (such as NZIS) that a member of that profession has attained a designated standard of accomplished practice. Certification programs are designed to differentiate and distinguish members who desire a higher level of professional achievement or an endorsement for a proven level of expertise.

A professional certification system is a system for defining high-quality standards, promoting development towards those standards and identifying those who reach them.

The main justification for certification systems is their capacity to promote widespread implementation of effective practices consistent with the latest research. Certification is the way most professions drive continual improvement in their members’ practice; in their own and in the public interest.

The ability to develop a publically credible certification system is a defining credential of a profession.

2.1.3. Types of Professional Certification

Within the area of professional certification, there are three basic types: competency-based, curriculum-based, and portfolio-based.

Competency-Based.

Competency-based programs require candidates to demonstrate their mastery of a common body of knowledge within their profession. True competency-based programs use legally defensible examinations, professional education, and experience requirements based on a set of tasks identified through an industry requirements analysis.

RPSurv – and a number of professional certifications from other industry bodies – have traditionally fallen within the competency-based type.

This approach works for professions with a clear and defined set of competencies, and a clear educational pathway into the industry concerned (such as surveying or engineering).

Curriculum-Based.

Curriculum-based certifications are based on the completion of subject-based professional education. They differ from academic programs by focusing on defined, job-specific subjects rather than broader academic criteria, and are generally not as time-intensive.

Many curriculum-based programs award certification after an individual has completed self-study, workshops, or other courses, and then passes comprehensive examinations.

This type of certification tends to be most appropriate when the goal is to train and assess individuals in a narrow range of knowledge and skills (vs. the full scope of a profession), for example, gaining 'Construct Safe' certification for site work, which provides an add-on to core knowledge and skills requirements.

Portfolio-based.

This is the least common method of certification. Generally, portfolio-based certification is awarded based on a candidate's documentation of professional expertise, experience, and education in various competency areas.

Portfolio-based certification is the preferred method when a set body of knowledge or required curriculum is harder to define.

Section 3. RPSpatial Certification Proposal

3.1. Do we need an NZIS-endorsed Registered Spatial Professional Certification?

This working paper is looking to ask that question and gain feedback on whether we need RPSpatial certification.

We are exploring the idea of Registered Spatial Professional Certification for two key reasons:

- The NZIS review of RPSurv provides an opportune time to examine and align a new RPSpatial option;
- In the past, some spatial members have indicated that professional certification would be something they would like to have as an option offered by the NZIS.

There are, however, differing views on certification and the potential benefits, which is what this paper is seeking to gain wider feedback on.

- Is spatial professional certification necessary?
- Is now the right time to introduce it?
- Is it distinct enough from existing certification options (i.e. GISP-AP)?
- Will it lead to employment advancement, increased competition, or other benefits to our members and the spatial industry?
- Or, is it a "nice to have" but not a "must-have" add-on?

3.2. Outline of the proposed NZIS RPSpatial Certification

3.2.1. Purpose

The purpose of the introduction of RPSpatial certification is to facilitate the advancement of professional development and standards in the spatial industry.

Those who have voiced support for a NZ Spatial Professional Certification believe that such certification will grow and support the spatial industry, encourage ongoing development of spatial practitioners, instil professional and ethical behaviour, and provide professional recognition.

RPSpatial certification will provide a means to support professionalization and advancement of the spatial workforce, encourage and recognise continuing professional development, demonstrate acknowledgement and adherence to a code of professional conduct and ethics, and provide a career achievement milestone for spatial professionals in New Zealand.

The purpose of the proposed RPSpatial Certification is as follows:

For the **individual**, RPSpatial certification:

- Indicates an individual's commitment to the spatial industry;
- Represents an individual's understanding and ability to apply the facts, concepts and principles deemed critical to working within the spatial industry;
- Indicates job-related expertise, and therefore reflects an individual's ability to perform more closely than a university degree or other formal education does;
- Requires individuals to take responsibility for their career development and stay current in their profession;
- Indicates peer assessment/recognition and contribution to the industry;
- Provides individuals with a professional goal, and an opportunity for a sense of pride and accomplishment;
- Demonstrates a knowledge of, and adherence to, a code of professional conduct and ethics;
- Provides an extra measure of credibility, respect, and recognition both within and beyond the spatial community; and
- Provides a 'mark of excellence' and a point of differentiation from other professionals.

For **employers**, RPSpatial certification:

- Provides a reference point for indicating a peer-reviewed assessment of an individual's understanding and ability to apply the facts, concepts and principals deemed critical to the successful execution of work in their area of spatial specialisation;
- Identifies competent professionals who acknowledge and adhere to professional standards and ethics;
- Provides a career-development roadmap for employees;
- Indicates a dedication to the industry; and
- Indicates a commitment to continuing professional development.

For the **industry** as a whole, RPSpatial:

- Helps to define standards and drive accountability; and
- Supports continuing professional development of the workforce.

3.2.2. Eligibility Requirements

Rather than a being a 'competency-based' form of professional certification, it may be more productive to view RPSpatial Certification as being an indicator of high standards of professional behaviour, peer reviewed specialisation of knowledge and skills, maintenance of professional development activities (currency of expertise), and leadership in - and a commitment to - the industry. As such, it would make more sense to assess eligibility for spatial certification through a portfolio-based process rather than a competency-based one.

In order to be eligible for RPSpatial Certification, an individual will:

- Be a member of NZIS;
- Hold an accepted credential to a certain level (TBC);
- Have a minimum of 5 years of spatial experience (TBC);
- Be in good standing as defined by references and peer review;
- Provide peer reviewed portfolio to demonstrate competency in their specialist area; and
- Accept and adhere to professional and ethical framework.

3.2.3. Maintenance

To maintain RPSpatial certification once attained, spatial professionals will need to:

- Submit an application for recertification every 5 years (TBC);
- Maintain an agreed level of Continuing Professional Development (CPD) activities over each recertification period (may include leadership activities, conference attendance, course work, contributions to the industry, etc); and
- Adhere to the professional code of conduct and ethics.

3.2.4. Revocation

Revocation of the certification will occur as the result of:

- Certificate holder's failure to earn the specified Professional Development units within the maintenance period;
- Unethical or unprofessional behaviour; and/or
- The loss of good standing (as determined by an independent panel (TBC)).

Other conditions and/or events may trigger the need to revoke credentials or require individuals to recertify in one or more topic areas(s) of an assessment.

3.2.5. Governance

The NZIS will be the overarching body that will support the RPSpatial certification programme, including the development, implementation, execution, maintenance and sustainment of the RPSpatial certification.

It will serve as the decision-making body for certification policy coordination, certification program schema, and essential certification activities.

3.2.6. Other Spatial Certification Options

There are currently some other professional spatial certification options available, both regionally in globally.

Local/Regional

GISP-AP. (SSSI)

At the moment, there is one other 'spatial' professional certification option in New Zealand, GISP-AP (Geographic Information Systems Professional (Asia Pacific)), which is assessed by the SSSI. This sits under SSSI's Spatial Information and Cartography Commission.

The GISP-AP Certification process requires a professional to initially demonstrate that an advanced level of expertise has been achieved, including:

- Successful completion of particular formal tertiary education in a particular spatial science discipline;
- Achievement of further relevant professional experience;
- Contributions to the profession.

Additionally, professionals obtaining GISP-AP must have been assessed as meeting the minimum standards for ethical conduct and professional practice, as defined by the program.

Certificate holders are required to re-certify every five years in order to maintain certification.

This is likely to be the only alternative certification program that potentially would compete with the RPSpatial certification. However, the GISP-AP has not had a great deal of uptake or success in New Zealand despite having been available for a number of years. This is, in part, due to the onerous process involved in attaining it, as well as the lack of benefits of certification in terms of employer recognition of, or requirement for, it.

As such, it is envisaged that the GISP-AP would be an ‘advanced’ certification for seasoned professionals to attain as a career milestone, and that RPSpatial would provide a more accessible professional certification option for the NZ spatial industry.

SSSI General Certification.

SSSI also acknowledge expertise at a general level through General Certification. Endorsement under this Certification informs the public and other professionals that the individual’s skills and expertise in the field of surveying and spatial sciences are recognised by their peers.

The process requires a professional to demonstrate their expertise through either a combination of tertiary qualifications and professional experience or professional experience in its own standing. Additionally, a commitment to a Code of Ethics is required.

General Certification is renewed each year by undertaking and reporting Continuing Professional Development (CPD) in line with the SSSI CPD policy.

International

ASPRS. The American Society for Photogrammetry and Remote Sensing’s (ASPRS’s) certification program offers certification in six specific areas of spatial information and technology, including Certified Mapping Scientist-GIS/LIS and Certified GIS/LIS Technologist. Notably, the Mapping Scientist-GIS/LIS certification requires expertise in subjects related to mapping science, not just GIS.

Applicants must pass a peer review of experience and training and pass the written examination for the specialty area. ASPRS has determined the knowledge and experience required for these job categories and provides a matrix indicating the focus areas of the tests for each of their certification disciplines. Because of the rigor of the examination, ASPRS certification is relatively exclusive.

GISCI. The GISCI certification program certifies individuals in the single category of GIS professional. It is a portfolio-based program that awards points for experience, education, and professional contributions, granting certification if the minimum required number of points is achieved.

In effect, the GISCI program certifies an individual as a ‘GIS professional’, which has been criticized for being very broad — some say too broad to be meaningful. As a portfolio-based program, the GISCI program cannot ensure competency. It can only attest to the fact that the individual has met the GISCI standards in terms of amounts of experience, education, and professional contributions. In

essence, GISCI uses time spent in job activities as a surrogate for competence. GISCI is a relatively inclusive approach to certification.

3.3. Spatial Professional Certification – General Discussion

3.3.1. Why Spatial Professional Certification?

The debate around the value of Spatial Professional Certification, and activities to implement professional standards, has been going on for several years (if not decades) in many different countries, and is not something that has a clear answer.

This is the inevitable result of the rapid growth of the spatial information and technology field over the last few decades. As spatial activities, systems, data, services, and professional ranks have grown, so have issues and opportunities. These include concerns about competency, pressures to recognize and develop a clearer notion of a ‘Spatial Profession’, desires to establish credibility and standing in the spatial field, and, of course, opportunities to meet these needs and profit from them.

Ultimately, any certification credential must be evaluated with respect to the purpose for which it is being considered. This is usually about specific jobs and the expertise required to perform them.

The notion of what a Spatial Professional is, however, is less specific. As anyone familiar with the spatial industry is aware, the depth and breadth of what ‘spatial’ encompasses, and what a spatial professional ‘does’ is not as easy to define. As well as this, there is no single agreed body of knowledge required for, or defined education pathway into, the spatial industry.

This, in itself, raises issues because developing useful generic job descriptions for the spatial industry has proven difficult. And if we struggle to define what a Spatial Professional is, it will be just as hard to define what the requirements are for certification as a Spatial Professional.

While we have proposed a portfolio-based approach to certification, a potential limitation of any spatial certification is that there is still a lack of general agreement on the skills needed for the spatial profession, given that there are so many different specializations involved in the spatial industry, and so many applied areas that make use of spatial technology. It would be very difficult to design a single measure that could fairly evaluate the basic skills needed. The range of spatial applications and technologies, and skills needed, continues to diversify rapidly and promises to do so well into the future.

The issues with creating a competency-based measure may be avoided by requiring formal spatial education in order to be certified. However, the obvious issue with this is that the great majority of spatial professionals do not have any formal spatial education.

To overcome this issue, one might consider a grandfathering provision which allows anyone with a certain number of years of experience in the industry to become certified. However, this does not really evaluate an individual’s competency either.

The recertification/maintenance process will require individuals to undertake accepted professional development activities. The problem with this is that the most appropriate development path for many spatial professionals may not be to take specialized spatial study options. It may instead be to learn more about XML, or environmental policies, or relational database tuning, or utility network design. To insist that someone has to do education within a very narrowly defined set of spatial courses or conferences would do the industry a major disservice. This is not to say that a continuing spatial education is bad. It may be a great option for some people. But it is just one of many valid options to help people do their spatial jobs better.

3.3.2. Potential Uses/Outcomes

Although it's too early to be certain about the impacts of certification, there are some potential outcomes commonly cited that are worth critically evaluating.

It is useful to look at these potential outcomes in terms of RPSpatial certification's goals:

a. Growth of the Profession.

Certification may help by providing general guidance on minimum knowledge and expertise requirements.

Again, these are minimum requirements, and many argue that this does not build the profession, but rather constrains it. Certification may instead prove to be a divisive issue within the spatial information and technology field.

b. Recognition.

Certification does provide some visibility, and therefore, recognition of individuals as spatial professionals, as well as of the spatial industry itself.

However, one may argue that defining the field limits it - the spatial information and technology field is very broad and is continuing to diversify rapidly, and creating a limited 'definition' of this may be detrimental.

c. Aid to Employers.

One of the often-stated goals of certification is to assist employers. Presumably, this means helping them in hiring decisions and, perhaps, in other aspects of personnel management, such as staff design and development.

Basing a hiring decision on whether an individual is certified would be difficult because certification is voluntary. However, a certified individual might be given a bonus in their evaluation. And some employers have, in fact, indicated that they would use certification in their hiring decisions. But if an individual is certified, what does it mean?

Certification does not really provide much useful information beyond what could be learned from exploring the items on a CV. Test-based certification can ensure knowledge in specific areas, completion of a certification program indicates the attainment of a minimal knowledge base, and portfolio-based certification only confirms the quantity of spatial credentials. So reliance on certification — depending on the type of certification and the specific job situation — could be misleading. In that way, certification could instill a false sense of security, ultimately harming employers who use it too freely.

Requiring certification can also play a role in indicating that the employer values staff development. However, a good employer should also provide more specific direction in terms of the skills employees must develop.

d. Aid to Contracting.

As in hiring, the potential exists for using or misusing certification in contracting decisions. And again, because certification is voluntary, unlike licensure, this would appear to be a misuse of it. In fact, requiring certification in a procurement process may likely be considered restraint of trade.

e. Assurance of Professional and Ethical Behavior.

The establishment and recognition of codes of professional behavior and ethics is the one element of certification that most people do seem to agree is good. But this does rely on a monitoring and complaints process which will regulate this element of certification.

f. Assurance of Competency.

Only certain types of certification can ensure competency, and then only in the areas they address. Aside from peer review and references, RPSpatial would not assess or indicate competency.

g. Public Protection.

Again, if competency cannot be ensured, then certification cannot really provide any additional public protection.

h. Career Development.

Much of the pressure for certification comes from individuals who think it will be a useful credential in building their careers and establishing credibility.

Spatial certification may indicate the amount of spatial involvement an individual has had; but it is unlikely to indicate specialization. Obtaining certification does indicate that the individual is taking independent responsibility for their career development (unless, of course, the certification was required by the employer). As Michael Schrage, a columnist for CIO Magazine, noted, "The real value of credentials and certifications . . . is not that they indicate greater skill, but they signal to the market that these individuals and organizations will jump through hoops to demonstrate how much they care about being seen as top notch."

Some individuals hope that certification will establish their standing in the spatial field. However, this will always be flawed as certification is voluntary. Someone who is certified is not necessarily "better" than someone who is not.

Section 4. Request for Feedback

As spatial technology expands, a hugely diverse range of skills is required to implement systems and move the industry forward. The space is so broad that it makes sense for us to discuss and question if and when a certification process would be useful and meaningful.

Some argue that certification will grow and support the spatial industry, encourage ongoing development of spatial practitioners, instil professional and ethical behaviour, and provide professional recognition

Others argue that to implement a consistent process, the certification criteria need to be either so broad that they're meaningless, or so narrow that they apply to a tiny fraction of relevant people, and would greatly hamper the industry if anyone took certification seriously.

Will certification "improve" the spatial industry and benefit those who are in it and those affected by it? At this time, it does not appear that certification goes very far in this regard. Yet, perhaps, the greatest value of certification programs is the requirement for continuing professional development and recertification. So if these initial attempts are viewed as first steps, building blocks, or experiments, they may provide some value in developing future directions.

Ultimately, the value of a certification program is based on its recognition and acceptance by the field in which it operates — the associations, professionals, and organizations. Which is why, at this time, we are opening the discussion and asking for feedback and guidance on the following key questions we are looking to answer:

- Is RPSpatial certification something that members want and, if so, why do they want it?
- Is RPSpatial something affiliated organisations and industry employers want and, if so, why do they want it?
- Will the industry recognise this certification as a value-added professional achievement? If so, how?
- What would the RPSpatial certification credential represent?
- What measures are valuable in defining eligibility for RPSpatial certification?

- Is this distinct enough from other certification options (such as GISP-AP) to be valuable, or will it just compete for members' attention, investment or involvement?
- How would an applicant for RPSpatial certification be assessed
- How do you recognise the variety of the spatial industry? Without being too broad or too constrained?
- How would RPSpatial certification be maintained?
- What are the anticipated benefits and limitations of professional certification in the spatial industry?
- Are the costs of setting up a new certification program (which will likely take 3-5 years to gain traction) worth the benefits?

We would appreciate any feedback to the NZIS Spatial Professional Stream – either via email (Kat.Salm@aurecongroup.com), or through verbal feedback to the committee (please email and we can arrange a time for discussion).