

Statistics Reveal It All: IEEE Senior Membership

1.0 Introduction

IEEE senior membership has two aspects. It is a type of IEEE member grade, and a tool for professional recognition of technical and professional excellence. Promoting senior membership is a high-priority activity on the IEEE Regions' and Sections' agendas.

The purpose of this article is to analyze recent statistics of senior member elevations and identify worldwide and regional trends, with an emphasis on the Region 7 (Canada).

Having had the privilege of serving as Toronto Section chair for 2008 and 2009, and being deeply involved in the section's senior membership recruitment campaigns, I wish to share some thoughts on the limitations of the current grade scale and make suggestions on possible improvement to the process.

The article is structured as follows: Section 2.0 presents an analysis of senior member elevations statistics. Section 3.0 describes "Structured Significant Performance Abstract" - a tool that has been used by Toronto Section to improve the quality of the elevation campaigns. Section 4.0 contains a proposal for a new IEEE certification - Certified Distinguished Member.

2.0 Senior Membership Statistics Analysis

Our analysis of the worldwide data of senior member elevations for 2006 - 2009 (based on the information available on the IEEE A&A website [1]) shows the following picture:

The total worldwide number of newly elevated senior members (SM) during this period was 8,939 and the annual average 2,236. Figure 1 shows the number of elevations by year.

Figure 2 shows the number of senior members elevated in 2006 - 2009 by Region. Region 8 was the leader with 1,777 elevations. It was followed by Regions 6 and 10, each with about 1,500 new SMs. All other regions are elevating two to three times less SMs than the leader.

A more detailed view of the performance of the Regions is presented in Figure 3. The chart shows regional numbers of elevated senior members, broken down by years. Generally, performance of most regions follows the overall IEEE pattern: Most regions (except 6 and 7) performed well in 2006 and experienced a drop in 2007 - 2008. Many regions displayed signs of revival in 2009, except Regions 1, 5 and 9. Although the decline stopped in 2009, only one region exceeded its 2006 - 2007 positions - by one (1) senior member: Region 7 (Canada) was the only one which was not affected by the overall decline, and has demonstrated a small growth year over year through the analyzed period (Figure 4).

Let's take a closer look at some Canadian Sections' performance in 2006 - 2009: Figure 5 presents Sections with over 20 elevations during the period. Three sections are showing the highest results: Montreal, Ottawa and Toronto, with the latter outstanding in absolute numbers. Even when one considers relative numbers, i.e., SM elevations per number of mem-

By *Alexei Botchkarev*

Ministry of Health and Long-Term Care

Ryerson University, Toronto, Ontario, Canada

Abstract

IEEE Senior Member is one of several grades of IEEE membership and an important tool for professional recognition. The article presents an analysis of recent trends in senior member elevations in the various IEEE regions. Comparative numbers are provided on how similar recognition tools are used by other professional organizations. Suggestions are made about improving the quality of the senior membership processes with the Structured Significant Performance Abstract. A new IEEE certification - Certified Distinguished Member - is proposed and the framework of its main features described.

Sommaire

« Membre Senior » est un parmi plusieurs grades de membres IEEE et un outil important de reconnaissance professionnelle. Cet article présente une analyse de tendances récentes de promotions vers le grade senior dans diverses régions IEEE. Des chiffres comparatifs sont fournis sur la façon dont des outils de reconnaissance similaires sont utilisés par d'autres organisations professionnelles. Des suggestions sont offertes sur comment améliorer la qualité du processus de promotion vers le grade senior avec un *Sommaire structuré de performance significative*. Une nouvelle certification IEEE, « Certified Distinguished Member », est proposée et le cadre de ses caractéristiques principales est décrit.

bers, Toronto leads the group of large sections with 5% elevation. Two smaller sections did even better for their size with almost 6% conversion rate: Kingston and New Brunswick. However, the arguments in this article pertain mostly to larger sections and the impact of SM elevation campaigns.

2.1 Admission & Advancement Meetings

An effective tool Toronto Section has used in its Senior Membership campaign has been the Admission & Advancement meeting. In May 2008, at the peak of the campaign, 37 section members were elevated at

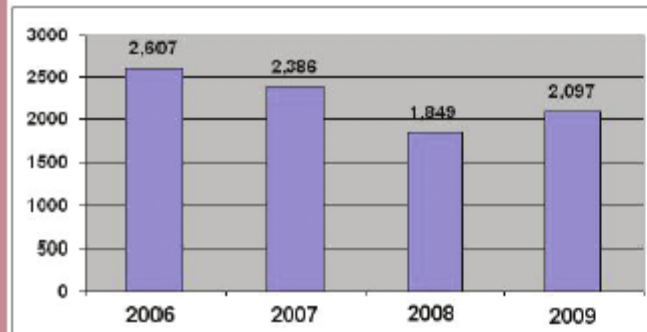


Figure 1: Number of senior members elevated worldwide by year

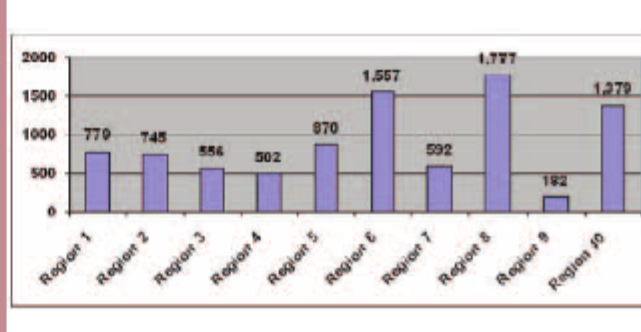


Figure 2: Number of senior members elevated by Region in 2006 - 2009

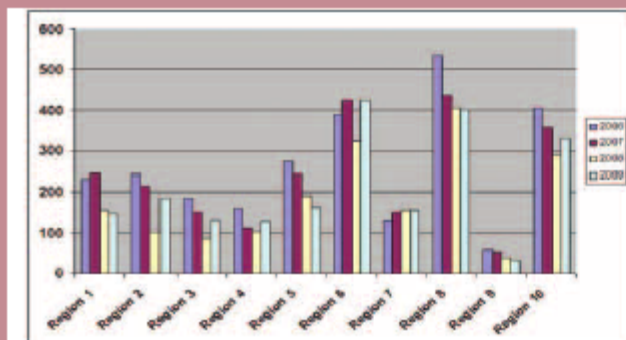


Figure 3: Number of senior members elevated by Region by year in 2006 - 2009

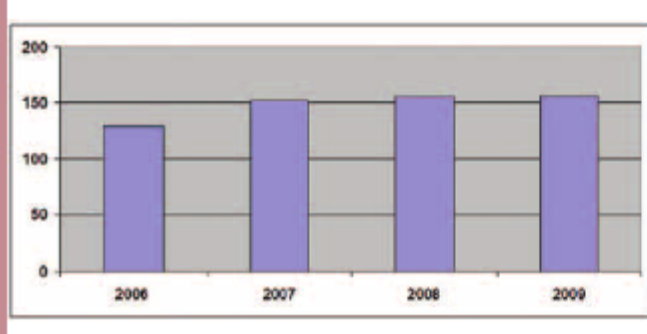


Figure 4: Number of senior members elevated by Region 7 by year in 2006 - 2009

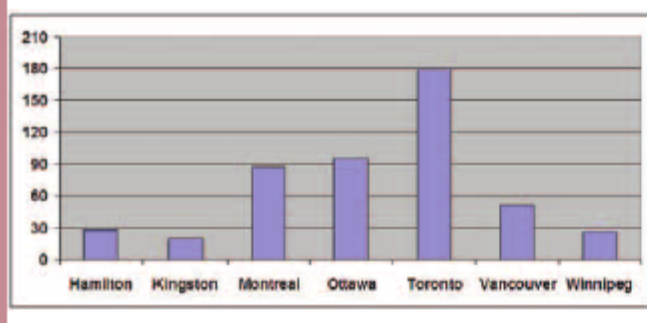


Figure 5: Region 7 Sections with more than 20 elevations in 2006 - 2009

a single Admission and Advancement (A&A) meeting. Montreal Section has also found this tool to be effective — 22 senior members at one A&A session in August 2007. (NB Montreal Section has generously shared their experiences with Toronto for the success of this initiative.) An A&A session in a Canadian Section usually yields around 10 new senior members. Using the A&A meeting and other approaches, the number of Toronto Section new senior members was 63 in 2008 and 47 in 2009. These numbers are twice the average annual results for the Region, albeit in absolute terms. More detail on how Toronto Section achieved its results are described in Section 3.0 of the article.

2.2 IEEE World-Wide Senior Member Elevation

Returning to the IEEE worldwide stage: Figure 6 shows SM elevation results of the top-10 IEEE sections in 2006 - 2009. Toronto Section holds 7th place. Three other Canadian sections: Ottawa, Montreal, Vancouver placed respectively 22nd, 26th and 52nd.

During the current decade (2000 - 2010) the total number of senior members exhibited modest growth, going from about 26,000 to 31,000.

It can be revealing to compare these results with the achievements of other professional organizations in the recognition of their members'

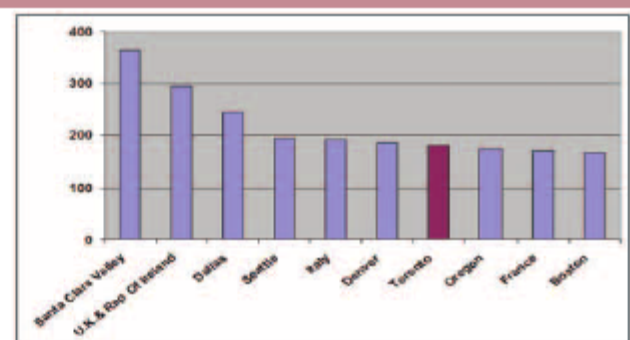


Figure 6: Number of SM elevations by top 10 sections worldwide in 2006 - 2009

professional qualifications. Although here are no identical or even very similar organizations and their respective recognition tools - member grades or professional certifications, the purpose and the goals of the recognition are very much alike. That makes high-level comparison of approaches and results possible.

The Project Management Institute (PMI) is a non-profit professional organization whose purpose is the advancement of project management practices. PMI is a relatively young organization established in 1969. Until recently (1999), its membership was around 50,000. PMI offers several professional certifications in the field of project management; their most popular and successful certification is Project Management Professional (PMP). The number of PMPs worldwide grew from 27,000 to 393,000 in the last ten years (according to Wikipedia [2]). Monthly growth rate of new PMPs is 4,300 individuals. This is comparable to the number of new IEEE senior members over two years.

In light of the above comparison, the humble growth of IEEE senior member ranks does not look very impressive. One conclusion is that IEEE should use its huge potential to achieve similar results. Improvements can be sought both at tactical (see Section 3.0) and strategic (see Section 4.0) levels.

3.0 Tactical Fix

By tactical fixes we mean improvements that can be implemented immediately. Other changes are of a strategic nature and require changes to IEEE official documents and processes.

For example, one of the concerns regarding the senior membership program is that requirements to achieve senior member grade (especially regarding significant performance) are formulated rather vaguely and allow a variety of interpretations. However, changing this situation would require a long process of updating IEEE official operating documents, and hence would take a long time. These improvements are referred to as strategic changes.

The most important issue in the senior membership program is the way significant performance is described by the candidates in their applications. Their lack of clarity most often result in elevation rejection or lead to delays when additional supporting materials are requested by the A&A Review Panels. The current "free-style" format of the significant performance abstract often presents difficulties for Panel members in evaluating applications and making decisions. They end up going back and forth between the significant performance abstract and the candidate's resume - often prepared for a different purpose and lacking reference to the IEEE senior member requirements criteria.

A&A reviewers often qualify their decision with the following statement: "(The reviewers) feel that the candidate is presently short the required number of years of significant performance". Unfortunately, the term "feel" is very adequate for the type of decisions made, but serious business processes should not be founded on such vagueness.

The quality of the process could be significantly improved by using a structured significance performance abstract (SSPA). Toronto Section developed a guide (a template and a sample) to help candidates in documenting their significant performance (see samples in Fig. 7a and 7b).

The SSPA has a table format. A table allows detailing of the candidate's accomplishments and integrating them with dates and positions held. Each position candidate hold (with dates and a title) is given a separate section (several rows). A separate row(s) is given to provide information pertaining to each of the significant performance indicator/criteria

STRUCTURED SIGNIFICANT PERFORMANCE ABSTRACT: Position 1

First Name: John Last Name: Smith IEEE Member Number: 123456789

Total Duration of Significant Performance: 7.5 years (seven years and six months)

Start Date: Sep. 2006	Position: Associate Professor
End Date: Present (Sep. 2010)	Organization: Deep Lake University Toronto, Ontario, Canada
Duration: 4 (four) years	
Evidence of Significant Performance	
No.	Start End Duration, months
<i>Substantial engineering responsibility or achievement</i>	
1	Principal investigator of a project funded by Natural Science and Engineering Research Council of Canada. Research grant \$100,000. Invented a new technique for failure recovery in optical long haul networks based on network hierarchical trees. A US patent was granted in 2009. Invention has been implemented in Northern Network Utilities.
<i>Publication of engineering or scientific papers, books, or inventions</i> List your papers (if you have more than 3 – 5 – attach a separate list).	
2	Published 15 scientific papers in the peer-reviewed journals, two patents. List of publications attached.
<i>Technical direction or management of important scientific or engineering work with evidence of accomplishment</i>	
3	Co-founder of the company (spin-off from the Deep Lake University) for the commercialization of large-scale cognitive networking technologies. The company supplies technology licensing and radio modules. The major responsibilities include leading the technology and product development teams.
<i>Recognized contributions to the welfare of the scientific or engineering profession</i>	
4	Member, IEEE Technical Standard Committee on Smart Grids
5	EITC The Excellence in Education Award – February 2010
6	IEEE Toronto Section Appreciation of Service Award – October 2009 (volunteer)
<i>Development or furtherance of important scientific or engineering courses that fall within the IEEE designated fields of interest</i>	
7	Developed and taught several courses in the Bachelor of IT and Master of IT Security programs at the university: • Introduction to Networking • Advanced Network Design (Graduate Course)
8	Chair of the Curriculum Committee, Faculty of Engineering. Main contributor to development of a new bachelor program in Information Technology with concentration in Networking and IT security. Contributed to development of the M.Sc. program in Computer Science and the one-year Master program in IT Security.

Figure 7a: Sample Structured Significant Performance Abstract (SSPA) for candidate's most recent position

applicable to the candidate:

- Substantial engineering responsibility or achievement.
- Publication of engineering or scientific papers, books, or inventions.
- Technical direction or management of important scientific or engineering work with evidence of accomplishment.
- Recognized contributions to the welfare of the scientific or engineering profession.
- Development or furtherance of important scientific or engineering courses that fall within the IEEE designated fields of interest.
- Contributions equivalent to those of the above in such areas as technical editing, patent prosecution or patent law, provided these contributions serve to advance progress substantially in IEEE designated fields.

The use of the SSPA can be started immediately as it doesn't conflict with the "free-style" current abstract. Obviously, preparation of the SSPA requires more time than a currently used abstract. But it's worth it. The use of the SSPA will save a lot of time for reviewers, make decisions more objective and accurate, and avoid elevation delays caused by requests for additional supporting information. The SSPA has already helped Toronto Section to resolve several senior member cases, which were initially rejected.

4.0 Strategic Re-direction

Tactical fixes, as the Structured Significant Performance Abstract, can be very valuable tools in making current processes more efficient. However, they will not be able to drive organization to the drastically higher level of performance.

PMI certification success story, and certification statistics mentioned in

Section 2.0, deserves to be explored in great detail. Use of the best practices proven by other organizations can provide a foundation for the strategic improvements in membership growth and member satisfaction for the IEEE.

Here are a couple of high-level observations and comparisons between the IEEE senior member and PMI PMP.

IEEE SM is almost exclusively an internal product. It is practically unknown and rarely appreciated outside the IEEE. No visible efforts are undertaken by the organization to communicate the professional status of senior members to the companies which employ them.

PMI success, conversely, is based on two pillars: Delivering a quality product (certified Project Management Professionals - PMP), and - arguably even important - Communicating with potential employers and convincing them that PMP has a great value for the organization. As a result of the PMI's marketing efforts, their certification has become a standard human resources requirement for project management positions (at least in North America). In many job ads for project managers, PMP certification is stated to be a mandatory condition of employment. Through the value perceived by employers, certification became a real tool for the thousands of PMP holders in career advancement. It is the success of the PMP holders that brings PMI new waves of members and certification candidates counted in thousands.

Based on PMI best practices, I believe IEEE would greatly benefit in introducing a new credential. I propose adopting a certification with the working title IEEE Certified Distinguished Member (CDM).

I suggest the following framework of features/characteristics for the CDM:

- In the hierarchy of the IEEE credentials, CDM should be placed higher than Senior Member but lower than Fellow. Only senior members in good standing should be eligible to apply for CDM.

First Name: John Last Name: Smith IEEE Member Number: 123456789

Start Date: Apr. 2003		Position: Program Manager		
End Date: Aug. 2006		Organization: Electric Grid, Inc.		
Duration: 3.5 years (42 months)		Toronto, Ontario, Canada		
Evidence of Significant Performance				
No.		Start	End	Duration, months
<u>Substantial engineering responsibility or achievement</u>				
9	Technical Lead in the development of fuzzy logic and neural networks for the energy applications. Achieved 10% improvement in control performance.	2003	2004	24
<u>Publication of engineering or scientific papers, books, or inventions</u>				
List your papers (if you have more than 3 – 5 – attach a separate list).				
10	John Smith, "Performance Study of a Self-Repairing Protection Device in Networks", IEEE Broadband 2007, October 2007, USA. John Smith, "Hierarchical Protection Scheme for Networks", 2004, US Patent Number 7,654,321	2004	2008	
<u>Technical direction or management of important scientific or engineering work with evidence of accomplishment</u>				
11	Project: Day-Ahead Market (DAM) - major evolution in the Ontario electricity system and market. Budget: \$50M. Role: Project Manager. Managed a team of 12 members.	2003	2004	12
12	Project: Wireless Meter with Interference Robustness Budget: \$750,000 Role: Project Leader. Led and coordinated a project team of 20 members.	2004	2005	12
13	Ongoing management of a department responsible for the product development and engineering support of network products. Budget: Annual revenues of approx. \$25 million. Role: Senior Manager. Managed department of 10 (on average) engineering and product staff.	2004	2006	33
<u>Recognized contributions to the welfare of the scientific or engineering profession</u>				
14	Member, International Council On Large Electric Systems (CIGRE) Working Group C414 – Rural Electrification	2003	2005	24
15	Employee of the Year award for contributions in network performance – October 1985			
16	Chair, Conferences Committee, IEEE Canada (volunteer)	2004	2005	24

Figure 7b: Sample Structured Significant Performance Abstract (SSPA) for candidate's immediately prior position

Commitment to the organization should be confirmed by a number of years of membership and involvement in IEEE volunteer work.

- CDM should target IEEE members across all societies.
- CDM candidates should demonstrate continuous significant performance for several years after being elevated to senior members.
- CDM candidate should hold at least one professional certification in the IEEE or related fields for at least one year prior to applying for the CDM certification. A list of professional certifications should be developed. It should include both IEEE certifications, e.g. Certified Software Development Professional, Certified Biometrics Professional, etc., and external to IEEE (but reliable) industry-accepted certifications such as PMI PMP, Professional Engineer (protected designation granted by the 12 constituent associations of Engineers Canada), etc. This point will ensure that a candidate has passed a rigorous exam (on top of other certification requirements), which is a vital requirement for any respected certification.
- Certification should be granted for a certain number of years and should require holders to continuously demonstrate significant performance and dedication to professional development in order to renew certification.
- IEEE must clearly identify CDM value to potential employers. It should include not only a clear description of the value and high caliber of the CDM holders, but also possible tangible incentives targeting employers directly as e.g. discounts for corporate Xplore subscriptions for companies employing a certain number of CDMs. IEEE should commit to the extensive use of its resources, including financial, to promote CDM to potential employers in the industry and academia. One of the goals of this campaign should be the eventual recognition of CDM as a criterion for full professor appointments in academia, and similar responsibility positions in the industry (in IEEE fields).

A more detailed description of the proposal has been submitted in 2010 to *The Institute* magazine.

With the CDM certification, I believe, IEEE will make a direct positive impact on the career advancement of its members. That will not only be a fulfillment of the prime function of the professional association, it will also bring an avalanche-like effect on the growth of membership and improvement of the IEEE financial situation.

5.0 References

- [1] IEEE A&A website. Newly Elevated Senior Members. http://www.ieee.org/membership_services/membership/senior/new_senior_members.html
- [2] "Project Management Professional", Wikipedia, http://en.wikipedia.org/wiki/Project_Management_Professional

About the Author

Dr. Alexei Botchkarev is a Senior Information Management Advisor with the Knowledge Management Branch, Ministry of Health and Long-Term Care (Government of Ontario), and an Adjunct Professor at Ryerson University (www.gsrc.ca). He has more than 30 years of experience in project management, systems analysis, modeling and simulation, business processes analysis, information systems solutions, requirements analysis and scientific research. He was Chair of the IEEE Toronto Section and a member of the IEEE Canada Board of Directors in 2008–2009. He was founding member of the IEEE TIC-STH 2009 Organizing Committee.

