



## Mohamed Salem Al Ghailani

Editorial Supervision

## Santhosh Muthalath

Senior Editor

## Sara Al Gheilani Nasebah Al Muharrami

Translation

## Ahlam Al Wahaibi

Design & Layout

## Photography Dept., CET

Photography

## Salim Al Sudairi

Circulation



SQU-info



@SQU-info



90199997



## To Inform Action

SQU recognizes the paramount importance of research in serving the society. The university has always considered the need for its researchers and academics to focus on those research themes that seek to ensure scientific and intellectual progress and the development of the Omani society. This institution realises that enhancements of scientific efforts is only possible with the support of the society and the government.

The research projects qualified to receive support from His Majesty's Trust Fund were announced on SQU Day. Between 2001 and 2015, His Majesty's Trust Fund supported 77 projects worth OMR 7 million. In the year 2015, SQU offered 63 internal grants worth OMR 490,000. SQU completed consultancy research projects under eight themes, which fetched OMR 1700000. In 2015, the Research Council (TRC) provided 18 open research grants to the university. In 2015, collaborative research projects between SQU and UAE University received funding worth OMR 66000. Currently 43 active agreements are in place between SQU and other institutions within Oman and around the world. The university is now in the process of introducing electronic systems to facilitate scientific research. In 2015-2016, six inventions were filed as patent applications with the US Patent and Trademark Office. These inventions belong to communication engineering, nanotechnology and agricultural & marine sciences.

Researchers from SQU published 1,420 papers in indexed journals in 2015. The university remained among the top three GCC universities, along with Qatar University and King Fahd University for Petroleum and Minerals, in terms of faculty publications. SQU is number one in terms of scientific publication in the Sultanate. SQU's Scival field-weighted citation impact is receiving relatively high values for papers published in such areas as immunology and microbiology, psychology, pharmacology and chemical engineering. Researchers from SQU published around 570 articles in Web-of-Science indexed journals and 850 articles in SCOPUS indexed journals. As the Deputy Vice Chancellor rightly pointed out in her message on SQU Day 2016, research remains a profitable investment, even in times of economic crises. Research is even more important during these times because it offers a way out of those crises. It is the need of the hour to intensify investment opportunities and a sustainable path for development that sets plans built on solid foundations that incorporate past knowledge and current observations.



Horizon invites contributions from SQU members of staff and faculty. Contributions in the form of articles, news, travelogues, stories of unique and interesting experiences, encounters, etc., are welcome. Contributions may be edited for the sake of clarity and length. Please send your contributions to [horizon@squ.edu.om](mailto:horizon@squ.edu.om) preferably, as MSWord attachments. Authors will be suitably credited.

The views and opinions expressed in the articles published in this newsletter are those of the authors and are not to be construed as the official views of the publication. Horizon is published three times a month by the Department of Public Relations and Information, Sultan Qaboos University, P.O. Box 50, P.C. 123, Muscat, Sultanate of Oman.

Phone: +968 24141045  
E-mail: [horizon@squ.edu.om](mailto:horizon@squ.edu.om)

Fax: +968 24413 391  
Website: [www.squ.edu.om](http://www.squ.edu.om)





## Five Projects to Receive His Majesty's Trust Fund



In her speech during the SQU Day celebrations, Dr. Rahma Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies & Research, announced five research projects approved for His Majesty's Trust Fund for the year 2016. The projects are as follows (names of the researchers in brackets): Novel Microfluidics Devices for the Determination of the Total Phenolic Content in Omani Honey and Fruits Samples (Dr. Haider Al Lawati, Department of Chemistry, College of Science). Identifying Genetic causes of Autosomal Recessive Intellectual Disability (Dr. Almundher Al-Maawali, Department of Genetics, College of Medicine & Health Sciences). Management of Tomato Yellow Leaf Curl Disease Complex (Dr. Muhammad Shafiq, Department of Crop Science, College of Agricultural & Marine Sciences). New Transition and Lanthanide Metals-based Hybrid Materials for Opto-Electronic Applications (Prof. Mohammed Khan, Department of Chemistry, College of Science). Achieving Sustainable Tourism Development: the Strategic Role of Tourism SMEs in Oman (Dr. Khaldoon Nusair, Department of Marketing, College of Economics and Political Science).

## Forum Sheds Light on Customer Services



The Customer Services Department at SQU organized the First Customer Services Forum at Al Fahem Hall, SQU Cultural Center, under the patronage of H.E. Dr. Ali bin Saud Al Bemani, the Vice Chancellor of Sultan Qaboos University. The event was attended by the Deputy Vice Chancellors, Advisors to VC, and a number of faculty members, administrative and technical staff. In his speech at the ceremony, Jassim bin Mubarak Al Batashi, customer relations specialist, said that the Customer Services Department seeks to find and suggest solutions to facilitate administrative procedures and provide high quality services for the customers. "It also seeks to provide effective communication channels with various university's units and provide a positive image of the mechanism that simplify administrative procedures, as well as provide high quality services and work to resolve the problems and dilemmas of the customers and follow-up them".

The forum included two sessions, the first one entitled "e-marketing and social media management and the second session entitled "Quality in Customer Services".

## Annual Day Celebrated with Splendour



Sultan Qaboos University celebrated its 16th Annual Day on 2 May with several activities to commemorate the royal visit of His Majesty Sultan Qaboos bin Said to the SQU campus. The opening ceremony was held under the patronage of H.E. Dr. Ali bin Mas'oud Al-Sunaidi, Minister of Commerce and Industry. The ceremony included a presentation on research at the university, besides honouring the outstanding faculty members, researchers and administrative and technical staff from various colleges, units and centres of the university. The chief guest later opened a research exhibition, which displayed some of the latest research projects carried out at the university, and a student exhibition of artworks and paintings.

In his speech on the occasion, H.E. Dr. Ali bin Saud Al Bimani, the Vice Chancellor, outlined the achievements of the university in academic and related fields. Student Advisory Council started functioning at SQU after completing the election process among students to select the council members. The Vice Chancellor also listed the major achievements of the academics and researchers at the university.

In her address, Dr. Rahma Al Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies & Research, outlined the major achievements of Sultan Qaboos University in research and postgraduate studies. "Between 2001 and 2015, His Majesty's Trust Fund supported 77 projects worth OMR 7 million. In the year 2015, SQU offered 63 internal grants worth OMR 490,000. The College of Medicine & Health Sciences received internal grants worth OMR 140000 for nine projects. Other colleges, Engineering, Education and Agricultural Marine Sciences received internal grants collectively worth around OMR 266000".

The Deputy VC said that SQU completed consultancy research projects under eight themes, which fetched OMR 1700000. "In 2015, the Research Council (TRC) provided 18 open research grants to the university. The major share went to the College of Science for six projects worth OMR 1200000. Four other colleges got funding worth OMR 1380000 for 12 projects. In 2015, collaborative research projects between SQU and UAE University received funding worth OMR 66000", she said.

Currently 43 active agreements are in place between SQU and other institutions within Oman and around the world. The Deputy VC further said that SQU is in the process of introducing electronic systems at the university to facilitate scientific research. "In 2015-2016, six inventions were filed as patent applications with the US Patent and Trademark Office. These inventions belong to communication engineering, nanotechnology and agricultural & marine sciences. The Academic Innovation Assistance Program (AIAP) at SQU received 95 projects worth OMR 86,000 in the academic year 2015-2016.

Commenting on the growth of postgraduate education at SQU, the Deputy Vice Chancellor said that 473 students enrolled for various postgraduate programs in 2015.



# Becoming a Reflective Learner

By: Dr. Judie Arulappan  
Assistant Professor  
College of Nursing, SQU



Many of us read textbooks and journal articles, listen to lectures and write exams. We also depend on rote learning. Reflection is a mental process of thinking and learning often used in everyday life. It is more than just a common sense of wisdom. Reflection is a means of improving performance, by using the outcome of reflection to inform future practice. It is a way of recognizing and maximizing the personal value of a learning experience. It is also a way of turning surface learning into deep learning. Reflection is a practice that facilitates the exploration, examination and understanding of what we feel, think and learn. It is a thoughtful consideration of academic material, personal experiences and interpersonal relationships. Reflection is a form of internal inquiry that extends the relevance of theory and deepens our understanding of the practice of our everyday life and work.

The value of reflection in learning lies in its ability to help learners to clarify their thoughts, to gain insights and to deepen their understanding of the information that they receive. Andrusyszyn (1997:2) says that reflection is a deliberate cognitive activity where learners connect thoughts, feelings, and experiences related to the learning activity in which they are involved in. As reflective learners, an individual can test the informal theories against formal theories. We integrate theory and practice through a process of reflection-on-action, i.e. trying to make sense of experience after the fact and reflection-in-action, i.e. trying to make sense of experience while it is occurring.

### Importance of reflection

Reflective learning and writing help to clarify the thoughts and emotions. Reflection also helps you to focus on the development as an effective independent learner, and on the strategies used to work towards this. The notes will become a record of the progress throughout the study. Reflection is a way of learning, not a method of assessment.

### Advantages of reflection

The learner will be able to accept responsibility for their learning and, as a result, for their personal growth. The learners can become metacognitive, or literally, learning how to learn. Learners become aware of their motives with their actions. Another advantage is that seeing a link between the work the learners are putting into learning and what they are getting out of it.

### Difference between active and reflective learners

Active learners learn most thoroughly and efficiently when they gain knowledge through their own actions or with a hand on approach. Active learners are typically interpersonal learners with a tendency toward an adventuresome type of personality. They apply the informa-

tion and instruction received to their individual lives. They prefer to actually experience the subject matter, rather than just gaining knowledge of the material. They retain the information given through repetition when they discuss or explain the material learned to others. Reflective learners gain understanding most thoroughly and efficiently when they are allowed the freedom to take time to reflect on the information and instruction they have been given. Reflective learners are typically intrapersonal, logical, mathematical learners with a tendency toward a thinker type of personality.

### Qualities of reflective learners

Reflective learners continually think about what they are learning, why they are learning it, how they are learning it, how they are using what they are learning, what their strengths and weaknesses in learning are, what their learning priorities are, how they can improve and build upon their learning process, how well they are working towards their short, medium and long term goals. Reflective learners consider their motivation, attitudes, ideas, and changes in the skills they need for different components of their study and learning, the thought that blocks their learning, the gaps in their knowledge and skills, and how they might best work towards filling these. The Reflective learners also engage with the specialist discourse of their subject area, discipline-specific conventions, and the ways in which knowledge is constructed and meaning is created in their particular subject area.

### Methods of undertaking reflection

Reflection can be undertaken either individually or in groups, orally, through pictures or in written format. It can be descriptive and functional, critical and analytical or creative and imaginative.

### Tools help with reflection

Try to make constructive use of lecturers' feedback on the work. Make sure that the learner understands what the lecturers are saying, and be prepared to ask them if anything is unclear. Once the learner has done this, list the improvements in more depth in the learning journal. These lists can be revisited at regular intervals. Self-evaluation questionnaires and checklists are useful tools to start thinking about the learners skills.

### Conclusion

Reflection can help a learner to better understand their strengths and weaknesses, identify and question their underlying values and beliefs, acknowledge and challenge possible assumptions on which the learners base their ideas, feelings and actions, recognize areas of potential bias or discrimination, acknowledge the fears of the learners, and to identify possible inadequacies or areas for improvement. Reflection can lead to greater self-awareness, which in turn is a first step to positive change – it is a necessary stage in identifying areas for improvement and growth in both personal and professional contexts. Taking time to reflect can help the learners to identify approaches that have worked well, and in that way reinforce good practice.



# The More You Know, the More/Less You can Create!



Dr. Rashid Al-Balushi  
Assistant Professor of Linguistics  
Department of English Language and Literature

It is generally assumed that the more you know in a specific area of specialty, the more chances there are for you to come up with novel insights, and the less you know, the less chances there are for innovation to take place. While I do not totally disagree with this general belief, I would like to provide an argument for the opposite view, namely that sometimes 'knowing a lot' can be a disadvantage.

Basically, if what you want to create is an extension of what you know (directly related to/based on it), then it is probably better to know a lot about the topic that you want to create in; say, 80% of your thinking should be occupied by knowledge/information/background about that topic. However, if what you want to create is meant to be novel, unprecedented, unique, and revolutionary, then it is probably better if your mind is occupied by 20% of the knowledge/information/background related to that topic. This is because the great amount of knowledge you have about the topic (what the other scholars have said about it) might indirectly/unconsciously cripple your mind, control your thinking, limit the freedom of your imagination, curb your enthusiasm for seeking novelty, tame your wildest thoughts, and restrict your creativity. This is because you might be constantly thinking about whether you want your contribution to be in line/agreement with what the other scholars have said, and many may not want to look totally different, for fear of rejection/looking odd. By contrast, if your mind is occupied by little information about the topic, which you want to create in, your imagination, will be free to come up with the wildest, most revolutionary, and most creative insights, which would ultimately lead to innovation.

Unfortunately, the example I have is a personal one, but I will tell it. When I started working on the topic of my Ph.D. dissertation in November 2008, which is 'Case Theory' (الصيغ الصرفية للأسماء) in Standard Arabic (SA), all I knew were some of the case values that Noun Phrases (NP) receive, some of the elements that assign them these case values, and some of the configurations in which they receive these case values; and this makes part of the theory that was popular until the early 1980s. But I did not know the background to and details of the case theories that had been formulated since the early 1970s to 2001. Had I been aware of all the relevant proposals and compelling arguments for them as well as whose they are, chances are that my mind would not have imagined that those proposals could be argued not to apply to SA after they had been assumed/argued to apply since mid-1970s until 2005. And, more important, my mind would not have been able to propose that NPs in SA can receive case according to a different mechanism, a novel proposal, a new theory (I am NOT saying that my theory is the 'absolute truth', but that it is better than the others in ACCOUNTING FOR THE RELEVANT FACTS; like any other theory, it is open to scrutiny and criticism). In 2013, I discovered that Albert Einstein had said "imagination is more important than knowledge."

To make the article meaningful, let's relate it to the context of teaching at SQU. Students as well as instructors need to distinguish between two types of courses, content-based, like Modern English Grammar (MEG), and skill-based, like Syntax and Semantic (S&S). The classes of each type must be prepared for differently. For a course like MEG, which makes the core of the language, the students need to read the tables of rules in the book and do the exercises in the book and handouts at home; this should enable them to get 50% of the material. The other 50% should be obtained by attending the class, participating in the discussion, asking questions, and, more important, practicing the grammar rules/structures in their writing and speaking so that they would become part of their linguistic competence.

By contrast, a (largely) skills course like S&S does not require reading the book before the class. All it requires is that the students read the notes of the previous class(es) before they come to class, so that they use that knowledge (as well as their understanding of it and ability to apply it) to perform the exercise of 'problem-solving' in order to be able to 'acquire knowledge' themselves in class, with the help and supervision of the instructor whose role is to present the exercise, provide the necessary tools and clues, and lead the students to discover the answer, but not giving it to them (unless all the means fail to make them discover it themselves, which has not happened in 19 sections of S&S since Spring 2011). Actually, there have been numerous occasions when students have contributed novel insights and answers to some of the questions raised in class, which, I believe, is a result of their being ready to create, having come to class NOT with the discovery itself, but with what it takes to make the discovery. On the other hand, and unfortunately, some students come to class after reading the notes of the class from other/former students' notebooks and knowing the answer to the exercise, which inhibits their need/desire/minds from discovering the answer, which is the situation when 'knowing the material' is a disadvantage. This way, the students miss a great learning opportunity (developing their analysis and problem-solving skills), one in which they can learn 'how to fish', rather than getting 'a small fish', though they know that the tests will require them 'to fish'.





## College of Nursing Marks SQU Annual Day



In connection with the 16th Annual Day of the university, the College of Nursing at Sultan Qaboos University organised a number of activities to enhance the awareness of the society and the university on how the College of Nursing and the nursing profession serve Oman and promote global health. The event was held under the patronage of Dr. Abdullah Al Fataisi, Expert, at the Office of the Vice Chancellor, SQU. The activities of the day focussed on the theme "We Care for Life, We Care for Oman".

Dr. Esra Al-Khasawneh, Dean of the College of Nursing, said that the event was aimed at advancing the College of Nursing through its contribution to the University by providing services relevant to the standards of the profession and the need of the Omani society, and highlighting the achievements and initiatives of the College through the different programs and services.

The official launching of CoN CARES was held during the function. CoN CARES (College Assistance, Reinforcement, Education and Services) is an initiative from the College of Nursing, which highlights how the college responds to the needs of the different colleges in SQU by providing different educational activities and services that will improve the university's well-being and health. Dr. Michael C. Leocadio, Assistant Dean, Training and Community Service, said that the college team, through this program, would roam around the different colleges to provide CARES sessions based on the identified needs of the college. The selected faculty members and students of the College will provide teaching to different centres and departments of the College through a scheduled presentation.

Supported by His Majesty's Research Fund, a group of researchers from the College of Nursing in partnership with ASM-Tech of Oman developed a mobile application that will increase the awareness of the Omani and Muslim women on the early detection practices and screening on breast cancer. The application was co-sponsored by the Oman Cancer Association, Omanoil Company and Methanol Company. The application is available for download in the Google Android Store. In a special session, trained health educators of the Najah Team provided health teaching about breast cancer to selected Omani women in the University.

In partnership with Oman Cancer Association, the college provided a mobile mammography unit during the event to invite Omani women eligible for the breast cancer screening through the scan. The breast cancer screening provided by OCA provides opportunities to women to be referred to breast health experts and to further their actions towards awareness related to screening and early detection practices. During the opening ceremony of the "We Care for Life, We Care for Oman" event, different booths displayed the major components of the University Day celebration.

## SQU Academic Bags ISANH Award



Dr. Jumana Saleh, Associate Professor of Biochemistry at the College of Medicine and Health Sciences won the Award of the International Society of Antioxidants for Nutrition and Health (ISANH) for her scientific contribution during the 16th World Antioxidants Congress recently held in Dubai. Dr. Saleh addressed new insights on metabolic markers linked to oxidative stress and atherosclerosis. The international conference was held in several European cities during the last fifteen years.

This is the first time the conference is held in the Middle East. Leading scientists from France, Britain, Sweden, Italy, Australia, the United States and some Middle East countries, including Oman, UAE and Lebanon took part in this Congress. The conference addressed up-to-date issues relating to developments in the field of antioxidants and dietary supplements concerning the region. Also, relation of oxidation factors to cancer, obesity and other chronic diseases was highlighted. Researchers from Oman including Dr. Mostafa Waly, Dr. Mohamed Essa and Ghazi Daradkeh from SQU and Dr. Amani Al-Rawahi presented their scientific papers that were highly appreciated by attending leading scientists in the field. The President of ISANH specifically quoted the conference committee admiration of the remarkable contributions from Oman. The conference was successful that the organizers decided to establish a new branch for ISANH in the Middle East.

## Event Sheds Light on Information Security

The Free and Open Source Software Society (FOSS) at Sultan Qaboos University recently organised the Oman Information Security Gathering (ISeG Oman 2016) under the patronage of Dr. Rehma Al Mahrooqi, SQU Deputy Vice Chancellor for Postgraduate Studies & Research. The event, which included presentations, panel discussions and practical sessions about various aspects of information technology. FOSS functioning under the supervision of the Communication & Information Research Centre (CIRC) at SQU, organized this event as part of spreading awareness on security of information systems in today's high technology environment.

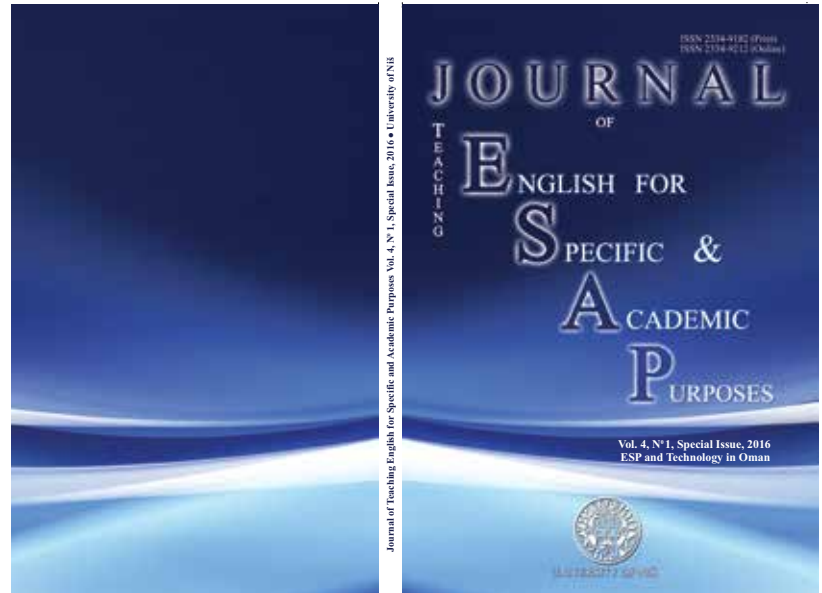
Speaking on the occasion, Prof. Hadj Bourdoucen, Director of CIRC, underscored the need to ensure security of information systems as organisations are becoming more and more dependent on their information systems. "The public is increasingly concerned about the proper use of information, particularly personal data. The threats to information systems from criminals are increasing. For organizations, information is an area of operation that needs to be protected as part of their system of internal control. As individuals, we usually hold sensitive personal information on our home computers and typically perform online functions such as banking, shopping and social networking; sharing our sensitive information with others over the internet. As more and more of this information is stored and processed electronically and transmitted across company networks or the internet, the risk of unauthorised access increases and we are presented with growing challenges of how best to protect it", he said.





# Journal Issue Focuses on ESP and Technology in Oman

By: Dr. Victoria Tuzlukova  
Language Centre, SQU



ESP and Technology in Oman is a title of a special issue of the open access peer-reviewed international Journal of Teaching English for Specific and Academic Purposes published by the University of Niš, Serbia, in online and print versions. The principal aim of the Journal is to bring together the latest research and development in various fields connected in any way with the ESP, EAP, General and Applied Linguistics. This issue of the journal, devoted to ESP and technology in the Sultanate of Oman with an emphasis on student skills' development and enhancement, has been prepared and edited by Dr. Victoria Tuzlukova, Dr. Saleh Al Busaidi, both with Sultan Qaboos University, Oman, and Dr. Christine Coombe, Dubai Men's College, UAE, in collaboration with Dr. Nadezda Stojkovic, Editor-in-Chief of the Journal. Now online (<http://espeap.junis.ni.ac.rs/index.php/espeap/issue/view>) it presents work done in the field of technology-based language education in Oman alongside with the journal's previous issue on ESP and Language Learning Technologies (<http://espeap.junis.ni.ac.rs/index.php/espeap/issue/view/9>) and the forthcoming project on ESP in Iran.

Serving as a forum for language educators and researchers to reflect on, validate and evaluate the technological approaches and products for their impact on skills' enhancement, language learning and teaching, this special issue includes research on integrating computer, internet and mobile technologies into the language classroom in the educational context of Oman and using them for communicative language teaching, engaging students in authentic, meaningful interactions and developing their critical thinking and problem solving skills. It also includes studies on tracking individual student learning processes, testing and assessment and language teacher professional development for effective use of technology in teaching. It includes 19 articles contributed by the researchers from Sultan Qaboos University, University of

Nizwa, Shinaz College of Applied Sciences, Dhofar University, Higher College of Technology, Muscat and other higher education institutions in the Sultanate.

All the papers in this special issue of the Journal of Teaching English for Specific and Academic Purposes focus on a multi-dimensional approach to technology-based language education in the Sultanate of Oman. However, they share a common understanding of the significance of technology for the continued development and enhancement of our students' competencies and skills. They clearly demonstrate that the technological boom has had a significant impact on education. The ever-expanding pool of technological choices has shown the potential to create successful learning experiences for students. Language education has also benefited from this revolution. Having offered "the means to help reshape both the content and processes of language education" (Warschauer & Meskill, 2000), contemporary computer, internet and mobile technologies have provided language educators and foreign language learners with unprecedented opportunities for teaching and learning. This is particularly true in language education in the Sultanate of Oman that features computer laboratories, a wide range of software and programs for computer-assisted and mobile language learning, and high levels of teachers and students' enthusiasm for technology-based language teaching and learning. In addition, there is evident teacher pursuit in helping students gain apprenticeship into new technology-mediated discourse communities, creating opportunities for authentic and meaningful interaction both within and outside the classroom, and providing "the tools for their own social, cultural, and linguistic exploration and for the kinds of international cross-cultural interactions which are increasingly required for success in academic, vocational, or personal life" (Warschauer & Meskill, 2000).



## Open Source is the Future of ICT

Erkan Tekman

Open Source Erkan Tekman is the CEO of 'Linuxera' Open Source IT Solutions and Services, a company based in Istanbul Turkey. He is associating with the national level free and open source software (FOSS) awareness initiative, jointly carried out by the Communication and Information Research Centre (CIRC) at SQU and the Information Technology Authority of Oman (ITA). Prof. Tekman has many years of experience with free and open source software movement. He was involved in Pardus, a Linux distribution developed with support from the Turkish government. Pardus' focus is office-related work including the use in Turkish government agencies. He also associated with the Ministry of Defence in Turkey for 8 years in successful implementation of the open source software deployment in its IT systems. Experts from Tekman's conversation about the political and social dimensions of open source movement.

**Horizon:** Can you shed light on the political and economic aspects of the Open source movement and share your views?

**Tekman:** After the 2008 financial crisis, the traditional engines of global growth—the U.S., Western Europe, and Japan—stumbled into recession. To the rescue came the once-poor developing world. China, India, Brazil, and other up-and-comers including the oil rich Middle East countries powered the global economy through the historic downturn. These countries continue to be growth engines of the world along with certain other developing countries. Open source software movement is one of the leveraging tools for growth for the developing world. The open source community is producing the technologies businesses need to be competitive in the data-rich 21st century. A critical mass of technologists in businesses and governments across the world has recognized that open source technology offers higher performance, scalability, and reliability at a much lower price than proprietary solutions. Open source's leadership in data storage clustering, high performance computing, analytics and mobile development will secure open source dominance over the next decade. The open source shift among proprietary software providers and the rise of open source in tech education will also reprogram the international tech workforce to study, master and implement open source solutions across every major industry.

**Horizon:** Do you think that the Open source movement could beat the monopoly of the proprietary software over the past years?

**Tekman:** The open source software movement had a slow start initially in the universities and colleges. When Linux was in its initial years, Microsoft CEO Steve Ballmer had referred to Linux as a malignant cancer, in 2001. Later on Microsoft realized how powerful the free software movement is, and the company started exploring ways it could make nice with the ever-growing community of developers who used open source. Now Microsoft has its own open source software Azure; some of their virtual machines are Linux. The Open Cloud of Microsoft offers hybrid, enterprise-grade cloud platform that supports a wide range of operating systems, languages, tools, and frameworks. Microsoft is contributing to open source.

**Horizon:** Why do you think that open source will decide the future of the world economy and the ICT evolution?

**Tekman:** As technology is progressing, more companies are moving towards simplicity. With the ubiquity of mobility, comes the in-

evitable movement towards the convergence of social, mobile, big data, and the cloud, the four pillars of ICT for the coming decades. Mobile is now the preferred platform for social media and can also be used to store data. Cloud solutions come in mobile forms as well. All these are possible with open source, which implies changing the software code according to the developers' requirements. Through open source platforms, we can create highly complex systems such as the Cloud computing or on-demand computing, which is internet-based computing, where shared resources and information are provided to computers and other devices on-demand.

**Horizon:** What makes open source based enterprises different from conventional ventures and businesses?

**Tekman:** Majority of start-up companies are using open source software. The inventions such as the Cloud, Big Data, Android, etc., were developed using the open source. These developments indicate that large data analysis is possible with open source. Open source will decide the future of information and communication technologies, and the future of the world. To be part of the open source world, you do not have to invest a lot of money. You can start with small investment and thing big and realise the dreams through innovative ideas that could change the future of the world. This is possible because money or resources do not limit the open source platform. Competent people can put one foot on the open source platform and the other foot on innovative ideas for future. As a university receiving support from the government, Sultan Qaboos University has a great potential to make big strides in IT applications using open source platforms. The small and medium enterprises and start-ups in Oman have a key role in shaping the future of this country. Such new enterprises can make use of open source.

