

Engineering and Art of Illustrated Travel Reports at the IMEKO World Congresses

Dan Mihai Ștefănescu, Senior Scientist, Romanian Measurement Society (RMS)

Jacob Fraden: *“Engineering is art of converting science into useful things”*.

ABSTRACT: The paper reflects the author's nearly three decades experience participating in various IMEKO conferences, symposia, workshops and mainly world congresses, as an author of works for several technical committees, member in TC-3 (Measurement of Force, Mass and Torque) and TC-17 (Robotics) and Romanian representative in the IMEKO GC. A lot of technical and scientific aspects of this activity under the IMEKO patronage are revealed, as well as some “secrets” of preparing illustrated travel reports on the conference-touristic adventures experienced in five continents (Europe, Asia, Africa, North and South America).

Keywords: IMEKO activities, travel reports, engineering, image processing, audio-visual means, video-memoirs on YouTube

1. INTRODUCTION

History of my participations in IMEKO (International Measurement Confederation) began in 1988, with the presentation of Romania's contribution to the Golden Jubilee of strain gauges and load cells in Houston, Texas. 20 years later I set up a first balance, at the IMEKO semi-Centennial celebration in Budapest, Hungary, the birth place of this worldwide organization [1]. This paper illustrates in a “belles-lettres” style, not only scientifically, the complex and various tasks under IMEKO patronage, with audio-visual extension and online presentation [2]. Richly reflecting the triennial IMEKO congresses, we intend to attract the young specialists all over the world to enthusiastically participate in these prestigious scientific events, joining up useful with pleasant.

2. COEXISTENCE OF ENGINEERING WITH ART RELATED TO SCIENTIFIC TRAVELING

Engineering and **art** appear together in the notable expression of Jacob Fradens's motto [3]. In many places worldwide the big bridges are considered art works! Equally, engineer proves to be an explorer and processor of ideas and images, wherever he would be! For a creative mind, science and art may form two complementary areas, Leonardo da Vinci being the best “combiner” from everlasting.

As the three presidents (US, UK and Chinese) of their Academies of Engineering have underlined, *“Globalization has made it easier for people to cross borders and travel great distances. (...) This summit (held in Beijing in 2015) led to international collaborations, friendships, and a renewed sense of what engineering does for people and society”* [4]. And, as Robert Socolow, professor emeritus of mechanical and aerospace engineering at Princeton University, remarked, *“Air travel brings us access to the extraordinary variety of human cultures and natural settings.”*

Scientists can also feature a wide cultural horizon, being committed to share it with the younger specialists' generation in measurement science.

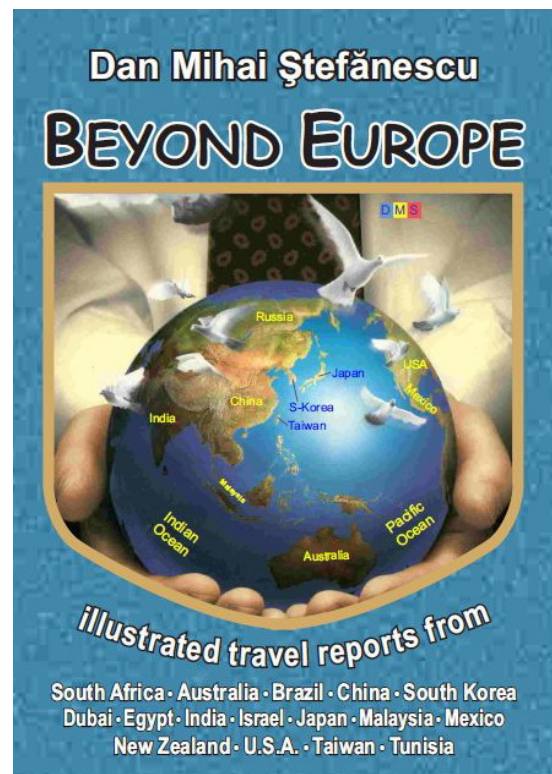


Figure 1. The cover of the book with illustrated reports of conference-touristic journeys, with the terrestrial globe image focused on the Asia-Pacific zone.

3. TEXT VS. PICTURES

The assumed *globetrotter* challenge emanates from a digital message exchange (through e-mail) on the optimal proportion between text and illustrations, with Lidia Zaverdeanu-Cosmoiu, who states that: **Illustration is welcome, fills the whole, facilitates imagination and visually accredits the text, that has to “stand” independently too... An immense richness of impressions, images, and feelings, generating vivid and interesting pictures, completing and coating a SPHERE** (apropos of the Earth globe cover, like that of the Elsevier “Engineering” review [4])!

Obviously, an illustrated text is more attractive than a simple “photo montage”, a tough task in view of the “confucian” quote that became classic: “*A picture is worth a thousand words*”.

The evolution of this concept may be clearly noticed, by scanning Wikipedia [5], at great thinkers belonging to various peoples, a *sui generis think-tank* like that of Table 1 – an example of engineering art (concentrates information and optimizes visibility: selection of fonts, positioning of quotes).

Table 1. “Pearls” of the French, Russian, Anglo-American and Chinese wisdom concerning the picture-text balance.

Napoleon Bonaparte	A good sketch is better than a long speech
Ivan Turgenev	A drawing shows at a glance what might be spread over ten pages
Fred Barnard	One look is worth a thousand words
Chinese people	Seeing something once is better than hearing it a hundred times

4. REQUIREMENTS CONCERNING TEXT

The four statements from above reflect the variety of audio or video expression means. Facing such a high standard, we begin our analysis following to meet several basic prerequisites:

- The “manufacturing secret” resides in the thorough notes taken in “real time”, that keep the authentic experiences, and subsequently correlating them with recollections preserved in the “drawers” of our own memory. The “engraved” style can not be achieved through aerial, naval or terrestrial movements, instead needs *a posteriori* polish of the travel impressions left over the scientific conferences attended.
- Such as global engineering ceased to discriminate between various specialties, this composition has to constantly reflect the mankind’s geographic, scientific and cultural kaleidoscope. It is necessary to masterly join up scientific rigor, literary expressiveness and artistic imaging. so that the information wealth be presented as spectacularly as possible. In this way, the printed or posted on internet page will come alive!
- Travel notes combine Da Vinci’s multidisciplinary with Brunel’s communication art (famous English engineer during the Industrial Revolution) and Talleyrand’s expertise in diplomacy – in most diverse hypostases.
- Reports are complex, interlacing earliest civilization (some world miracles appear too) with up-to-date know-how, in-flight thoughts with on-place palpable actions. Also, scenical touristic views or specific points are not missing, within an uncommon travel guide, sometimes encyclopedic.
- The main effort, exerted by an ingenuous and ingenious engineer, has been focused toward the empathetic and sympathetic rendering the specific of each country, inserted into an ample and spectacular general picture of the world we live in.

5. SECRETS OF IMAGE PROCESSING

The images exhibit a large density of information, with “inserts” which cover certain “nude” zones and use clever graphic “artifices”, whereupon I fully benefited from the remarkable experience of my mentor, Dr.

Aurel Millea. As a “professional deformation”, the artistic fantasy builds up with engineering means. For this, *soft* and *hard* happily exist together!

Figures 2...10 illustrate by various means the complex IMEKO activities: envelopes and invitations to world congresses, personalized maps (subway and/or railway routes, airport marks), covers of work collections or CDs with touristic / advertising role, diverse official documents, group or private photos with friends from all over the world, scientific bulletins edited by IMEKO.

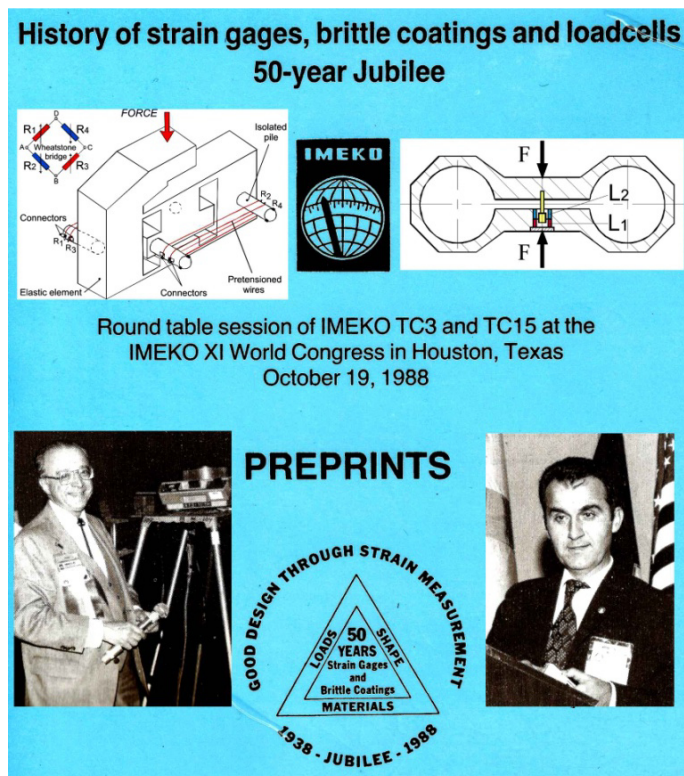


Figure 2. Houston, Texas, 1988: Cover of the jubilee volume Tensometry 50, at the IMEKO XI World Congress under the motto “Instrumentation for the 21st Century”. In attach, the organizer P.K. Stein and Romanian delegate D.M. Ștefănescu, with two original contributions of him concerning development of elastic elements for force transducers.



Figure 3. Beijing, China, 1991: Invitation par avion to the IMEKO XII World Congress, under the motto “Measurement and Progress”, with “windows toward world” as emblematic images “addressed” from the organizers and the Romanian delegate, respectively.

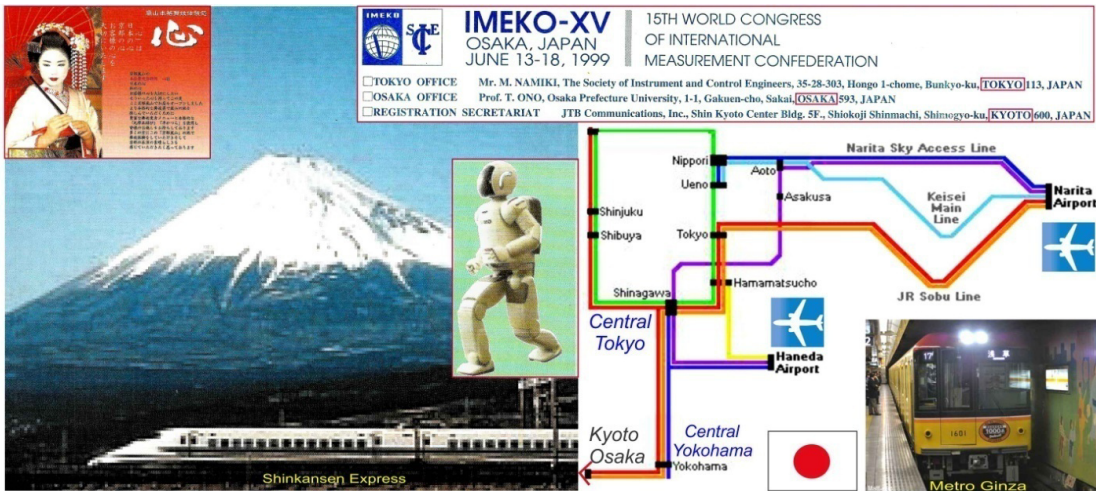


Figure 4. Japan, 1999: Program of the three scientific events under the IMEKO XV aegis at Tokyo (pre-congress), Osaka (congress) and Kyoto (post-congress), and Nippon symbols: engineering achievements (robot and high speed train) or artistic images (Fuji mountain and geisha).

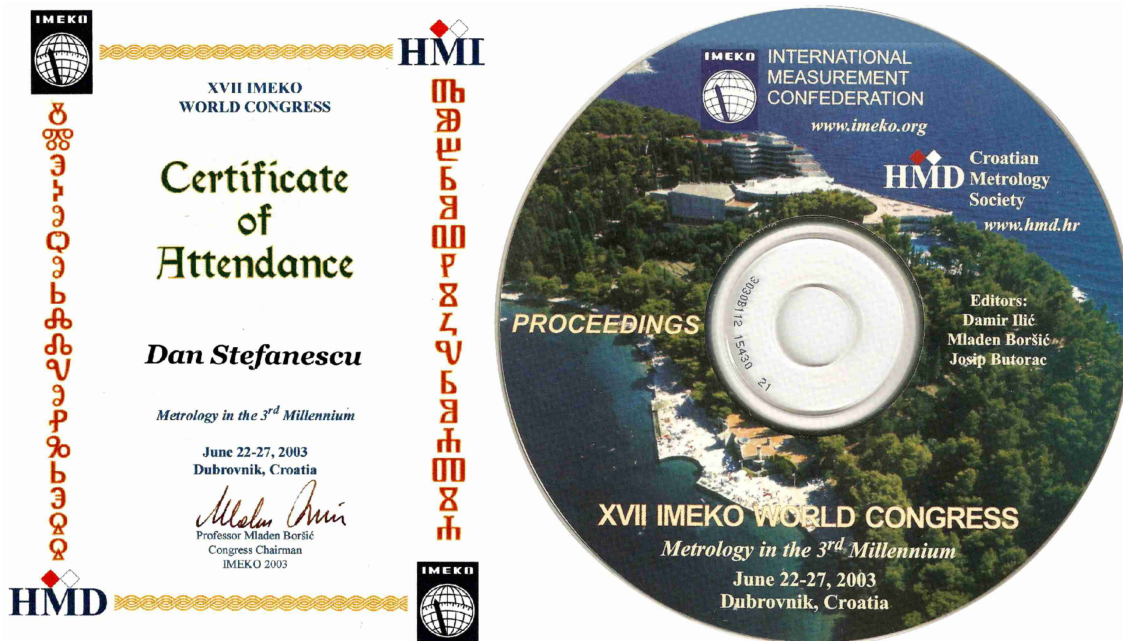


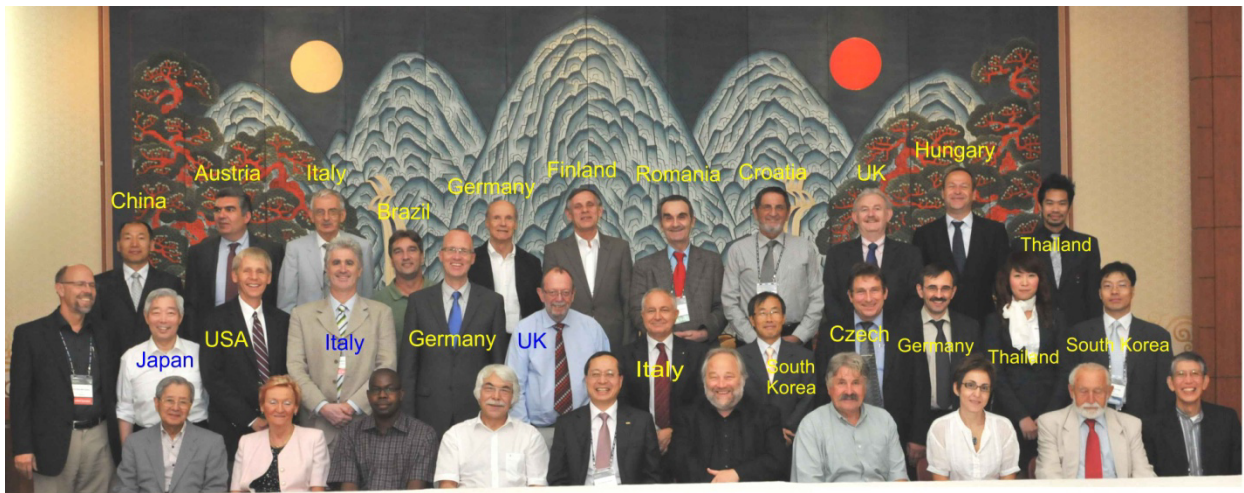
Figure 5. Dubrovnik, Croatia, 2003: Certificate of Attendance and CD Proceedings of the IMEKO XVII World Congress under the slogan "Metrology in the 3rd Millennium".



Figure 6. Rio de Janeiro, Brazil, 2006: IMEKO XVIII World Congress under the motto "Metrology for a Sustainable Development". Force measurement experts at a round table discussion: J. Pratt (NIST), M.S. Kim (KRISS) and D.M. Ștefănescu (RMS), with the participant countries' flags in background.



Figure 7. Lisbon, Portugal, 2009: IMEKO XIX World Congress under the slogan “Fundamental and Applied Metrology”. The author with P.P.L. Regtien (IMEKO Vice President for Publications) in the Internet Access Room, FIL Meeting Centre, World Expo 98 Complex.



Germany Japan Hungary Kenya Germany South Korea Belgium Slovenia Spain France Japan
 Figure 8. Busan Exhibition and Convention Center, South Korea, 2012: “G20 Summit” with IMEKO XX leaders under the motto “Metrology for Green Growth”, a group illustrating IMEKO’s universality, in front of a huge tapestry with Sun and Moon.

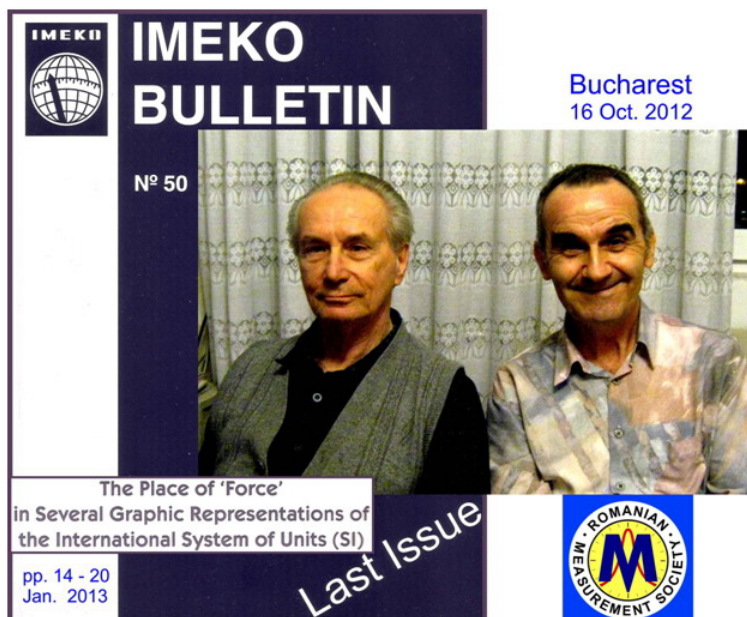


Figure 9. Historical, last IMEKO Bulletin (no. 50, 2013), containing a technical paper written by D.M. Ștefănescu and A. Millea, actual, and respectively, former Romanian representatives in IMEKO General Council.



Figure 10. Prague,

Czech Republic, 2015: Plenary round table “The ‘SI’ Quantities and Units – A Universal Language Bridging over the 24 IMEKO Technical Committees”, within the IMEKO XXI World Congress held under the slogan “Measurement in Research and Industry”, with D.M. Ștefănescu as chairman and keynote speaker.

The result is not a *mixtum compositum*, but a solid construction, made of the best quality materials, a unusual museum that exhibits magnificent pictures from several corners of the world.

Periodical tables are presented, summarizing touristic programs / conferences or global inter-country comparisons, enlightening worldwide supremacy like in Table 2.

Table 2. Numerical values in the table show positions of some important states based on area, population and development level (expression of advanced engineering).

Country	Area	Population	GNP
Australia	6	50	12
Brazil	5	5	6
China	3	1	2
Germany	63	15	4
India	7	2	9
Japan	62	10	3
Mexico	14	11	14
Russia	1	9	10
South Africa	25	24	28
South Korea	109	23	15
USA	4	3	1

According to the average of these factors (area, population and GNP) the top three countries are China, USA and Brazil.

6. READERS IMPRESSIONS

There is no greater pleasure than going heart and soul into showing people what you have seen worldwide, like an always open book, and then get the recognition of passionate readers.

Rodica: *Such as it comes out from the description, over there a fairytale world exists. I think you should bring together your scientific travels within a **literary work!***

Daniela: *I read “off the reel” the “Korean Journal”! It is so well written that I felt like being there, desiring not to finish! Congratulations for this undertaking, a wonderful opportunity to acquaint a different world, to see it with the eyes of a **scientist**!*

Adriana: *Seeing so many places and meeting so many people – just apostles had this privilege! With a quite high focusing power, an **engineer’s** mind and a **poet’s** spirit, dressed in cloths of normality (...) each report is like a delicious cake, prepared according to an unique and original recipe, a real literary feast!*

Alexandru: *You are like a lightning rod for the information burst we are submitted by the outdoor world, without neglecting your internal “ego”, and make your own way toward fulfilling the supreme project of any **scientist-artist** genius, namely freedom!*

7. AUDIO-VISUAL PRESENTATION MEANS

At the beginning of this millennium recording and archiving audio-video information on magnetic tape (e.g. cassette recorder) was replaced with miniature means (“flash” memory cards, associated with both photo- and video cameras [6]).

Technology means “reason” (*logos*) of “art” (*tekhnē*) and these two facets interlace more and more profoundly, generating spectacular images, easily accesible and utilized by a more and more widespread public.

We could ask “to what extent development of technology deepens or smooths the classic vs. modern contradiction?” How can reconcile a solitary scholar from the “Gutenberg Galaxy” with the *homo videns* of Giovanni Sartori, who feels that he does not exist if not appearing on TV? Can anybody enjoy the intimacy of contemplating the world under the everyday siege of mass-media’s noughts and nays or among people with heads in “digital cloud”, conceived as a universal control tool?

Evolution and diversification of communication means is beneficial for mankind’s culture, not only for the superficial consumerism. Exactly like the performant doctors, veritable engineers and artists practice permanent education and “Da Vincian” mastership in order to contribute in a way or another to the well-being of society as a whole.

A new profession appeared, *public videographer* [7] or, otherwise expressed, *writer with images*. People have no more time to read and much less to write, in order to consign their life experience... These “video-memories” (interviews in front of video-cameras) will be transmitted to the next generations. Do not think only to wedding ceremonies in various configurations, but also to audio-visual portraits of certain notorious personages!

A videographer is like a jolly-joker: partly director, partly sound man and partly editor. The video-camera merges with *man* not only as a generic term (*cameraman*) but as a scientific-fantastic extension of human senses, used with engineering reason and artistic talent. Not incidentally, professor Christof Rohrbach (Bundesanstalt für Materialprüfung, Berlin) deems that “*man is the most sensitive instrument*”.

8. VIDEO-MEMOIRS ABOUT AUTHOR AND HIS ILLUSTRATED TRAVEL REPORTS

Alexandru Stănescu is a young Romanian film lover, a talented film maker and... my stated fan, who helps me to enlarge the horizon of literary-scientific creation! Alex has compiled my audio-visual CV (Fig. 11) [8] and the artistic presentation of the book “*Out of Europe (Beyond Europe)*” [9] on YouTube, two original video-memoirs that accompany the printed book or the digital version for virtual environment. You may appreciate the happy interweaving of his shootings with fixed frames, spectacular montages based on conference slides (DMS), pictures taken during “exotic” journeys and “live” films of documents and of author’s library.



Figure 11. D.M. Ștefănescu presenting his audiovisual CV (YouTube) in which a great part concerns IMEKO activities.

The presentation has been admirably translated from Romanian to English by Virgil Titeu, facilitating the universal reception of the message, a real cultural-artistic manifesto.

Hopefully our science and art will make useful to the worldwide public these testimonies of the “*joy of traveling*”, in the spirit of Fraden’s quote.

ACKNOWLEDGMENTS

Thanks are due to sponsors from all around the world, who made possible such dreamy travels, as well as to close collaborators, among them being mentioned in this paper Dr. Aurel Millea, Alex Stanescu and Virgil Titeu, for their contribution to these printed and/or audio-visual achievements.

REFERENCES AND LINKS

- [1] D.M. Ștefănescu, My 20 years of IMEKO – History and perspectives, IMEKO Bulletin no. 47, Budapest, pp. 14-17, October 2008.
- [2] D.M. Ștefănescu, Dincolo de Europa (Out of Europe), 268 pages, Tipro, Bucharest, Romania, 2015.
- [3] J. Fraden, Handbook of Modern Sensors, Springer International Publishing, Switzerland, 2016, page 413.
- [4] C. D. Mote Jr., Dame Ann Dowling, Ji Zhou, The Power of an Idea: The International Impacts of the Grand Challenges for Engineering, Engineering (the official journal of the Chinese Academy of Engineering and Higher Education Press), vol. 2, pp. 4-7, 2016.
- [5] “A picture is worth a thousand words” (Chinese proverb), Wikipedia, 18 Jan. 2017 – https://en.wikipedia.org/wiki/A_picture_is_worth_a_thousand_words.
- [6] A. Stănescu, Tehnologie (in Romanian) <https://paseist.wordpress.com/2016/07/02/tehnologie/>.
- [7] Videograf, DEX (Dicționar Explicativ al Limbii Române) online <https://dexonline.ro/definitie/videograf>
- [8] DMS – CV audiovizual (12:10) <https://www.youtube.com/watch?v=nRvczwxr1A>
- [9] DMS – Dincolo de Europa (8:32) <https://www.youtube.com/watch?v=BYVsAHoxEMo>

For references [8] and [9], please activate the English captions as follows: Click the nut-shaped button, choose CC – caption / subtitrări – Engleză!