Journal of the European TRIZ ANSISOCHATION - 01-2020 Volume 5
The collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather Tithe Zetundopreea Collection of unpublishmend/antagorers and presentation josuon ather the presentation at the collection of unpublishmend/antagorers and presentation josuon at the collection of unpublishmend/antagorers and presentation josuon at the collection of unpublishmend/antagorers and presentation at the collection at the collection at the collection of the collection at th
Special Issue: Selected papers presented at the 3rd International TRIZ Future Conference - Worldwide
TFC2003 Editors: Gaetano Cascini, Denis Cavallucci.
ETRIA e.V European TRIZ Association. ISSN 1866-4180
Please click this link to dpen vartdo@hl@a@CP(DE)file (120 MB):
Please cite the articles as: Surnames, Initials. Title dibthreal/uticidee European, TININION/STOCIBIJOSSN 1866-4180, 01/2020 Volume 05, p

## Content

Best Practices for Systematic Innovation with TRIZ Methodology in Automotive Industry Pavel Livotov (Offenburg University, Germany; ETRIA e.V.) Editorial 5

Requirements for systematic process innovation: System dynamics versus TRIZ? Andreas Jost (DaimlerChrysler Research and Technology, Germany) 8

TRIZ approach in an automotive supplier: MGI COUTIER Pascal Guerry (MGI COUTIER, France) 20

Proposal of an Object-oriented model of the physical contradiction to facilitate the problem-framing phase in design Sebastien Dubois, Phillippe Lutz, Francois Rousselot (INSA Strasbourg, France) 29

PAT-Analyzer: a tool to speed-up patent analyses with a TRIZ perspective Gaestano Cascini, Paolo Rissone (University of Florence, Italy) 39

Transformation of structurally similar elements of technical system Elena Novitskaya (Educational center "Universum", Belarus) 60

Deployment of TRIZ within PSA Peugeot Citroen and Experience Feedback Guillaume Dupont and Marcel Monnier (PSA Peugeot Citroen, France) 67

New system of standard solutions of inventive problems Vladimir Petrov (Israel) 82 High-Level Innovative Solutions using Non-Linear S-Field Models and Combined Effects Prakash R. Apte (Indian Institute of Technology at Bombay, India) 98

Applying TRIZ to Endodontic Tool Design Ellen Domb (PQR Group, USA) and Joh "Jack" Jacklich (Special Products, Inc., USA) 110

Differentiating the role of TRIZ in sustainable and disruptive innovation process Pavel Livotov (TriSolver Group Europe, Germany) 125

Fast Software by TRIZ Michael Schlueter (Philips Semiconductors GmbH, Germany) 136

TRIZ - past, present and future Vladimir Petrov (Israel) 149

Innovation process as a key to the market success in the engine manufacturing business Thomas Novacek (MTU Aero Engines, Germany) 172

About non technical barriers preventing efficient TRIZ integration into organisations Denis Cavallucci, David Oget, Michel Sontag, and Nathalie Gartiser (INSA Strasbourg, France) 184

Vehicle soundproofing: Improved door seal Dominique Benoit and Chris Rhodes (ArvinMeritor, France) 200

Levels of TRIZ support for the innovation and problem solving projects in the automotive industry

Dennis Murnikow (TriSolver Group Germany, Germany) 220

TRIZ cases study in Volkswagen of Mexico Edgardo Cordova Lopez (Benemerita Universidad Autonoma de Puebla, Mexico) 228

Total Product/Process Development System: Where Six Sigma Meets TRIZ and QFD Michael S. Slocum (Breakthrough Management Group, USA) 267

Innovative process chain optimization – Utilizing the tools of TRIZ and TOC for manufacturing Tilo Pfeifer and Martine Tillmann (Fraunhofer Institute for Production Technology, Germany) 282

Constraint-dominated breakthrough innovation in a manufacturing process situation: A case study from the photographic paper manufacture industry.

Ian Mitchell (Ilford Imaging UK Ltd., UK) and Darrell Mann (CREAX, Belgium) 302

Towards a management of problems formulation within the framework of lean manufacturing implementation

Zahir Messaoudene (INSA Strasbourg, France) 329

Solving technical problems in manufacturing processes by using embedded-TRIZ Jan C. Aurich and Karsten Jenke (University of Kaiserslautern, Germany) 344

Applying the TRIZ principles of technological evolution to customer requirement based vehicle concepts - Experience report Eckhard Schueler-Hainsch and Christine Ahrend (DaimlerChrysler AG, Germany) 364

Observing the development trends of glass moulds using the laws of technical system evolution Pavel Jirman (Tech. Univ. of Liberec, Czech Rep.), Bohuslav Busov (Tech. Univ. of Brno, Czech Rep.), and Alexander Skuratovich (TRIZ consultant, Belarus) 374



TRIZ experience at Hutchinson Nicolas Gombert (Hutchinson, France) 382

TRIZ based patent analysis for lighting electronics Siegfried Luger (Luger Research, Austria) 396

TRIZ-based technology intelligence Markus Grawatsch (Fraunhofer Institute for Production Technology, Germany) 412

Peculiarities of structural and functional analysis of forecasted engineering systems Peter Chuksin (LG Electronics, South Korea) 424

Using TRIZ to Create Innovative Business Models and Products Atsuko Ishida (Hitachi, Japan) 431

On the question of the generating typical solutions
Alla Nesterenko (Academy of educator's retaining and upgrading, Russia) 448

TRIZ for people: psychological aspects Nelly Kozyreva (Belarus-TRIZ, Belarus) 462

Complimentary materials and other publications:

AIDA Automatic Idea Generator – an effective tool for boosting engineering creativity and inventiveness

Pavel Livotov (TriS Europe Innovation Academy, Germany) 488

Wednesday, 01 Janua	v 2020 12:05 - Last	Updated Monday.	28 December 2020 18:03

A Comparative Analysis of Praxiological Networks and Selected IDI	EF Models
Maksymilian Smolnik	4

A framework of forecasting techniques as a checklist to minimize the likelihood of product design failures

Yuri Borgianni

12

A systematic literature review of TRIZ used in Eco-Design
Shqipe Buzuku, Iuliia Shnai
20

Application of TRIZ Concepts to University Career Development Education:
A practical example of lecture activity with TRIZ

Kiyohisa Nishiyama, Leleito Emanuel, Nobuaki Sakai

32

Automation of conceptual design stage of framed buildings projects using TRIZ function modelling in BIM environment. A case study *Ivan Renev, Leonid Chechurin, Elena Perlova* 

39

Combining discrete event simulation, data analysis, and TRIZ for fleet optimization Sébastien Bach, Roland de Guio, Nathalie Gartiser 47

62

Forecasting of product and technology development using
heuristic-systematic approach
Sebastian Koziołek, Marek Mysior, Bartosz Pryda, Robert Smirnow, Marek Robak

71

80

Innovative interaction design approach based on TRIZ separation principles and inventive principles

Xiaoguang Sun, Rémy Houssin, Jean Renaud, Mickael Gardoni, Denis Cavallucci

88

'Liberty vs. Love': The Principal Contradiction of Human Culture.

(2) The 'Liberty vs. Love' Contradiction and 'Ethics' at the Personal Level

97

Multiscreen Analysis for Team Strategy Development

Tiziana Bertoncelli, Francesco Papini, Kunal Goray, Oliver Mayer

105

The 40 Inventive Principles to conduct negotiations - Strategies and tactics to solve conflicts in communication

Claudia Hentschel

113

The method of the design improving by using the TRIZ function analysis and the trimming

The Study of Effectiveness of TRIZ Tools for Kaizen Activities in Japan
and Developing Countries
Manabu Sawaguchi, Heikan Izumi

145

Trimming in the context of IT-services

Teemu Toivonen

153

TRIZ popularity, challenges and strategies to make it work in Finland Behrooz Khademi, Kalle Elfvengren, Leonid Chechurin

161

TRIZ to resolve socio-technical contradictions within the product usage integration in design

Rémy Houssin, Amadou Coulibaly, Denis Cavallucci, Jean Renaud

186