



The International Academy for Production Engineering

NEWSLETTER

N° 31 – November 2007

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The logo CIRP originates from "Collège International pour la Recherche en Productique"

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The next issue of the Newsletter is scheduled for April 2008. Your contributions are most appreciated; you may send it to the CIRP office in Paris or directly to the editor at: j.meijer@utwente.nl preferable before **March 15th 2008**

Johan Meijer (Technical Secretary)

1. From the President

Dear Colleagues,

Time flies by. More than one month has past since we met in Dresden at the 57th General Assembly. I have received many feedbacks from you.

Every statement was positive and acknowledged the perfect organization as well as the great hospitality of Professor Reimund Neugebauer and his whole team. With pleasure I will forward this good news to Dresden. I wish you have safely arrived back home and did not find your office desk to heavily piled up with papers and weighted down with other work.



In the further development of our academy in my perception we are on good and promising tracks. Manufacturing Engineering is in a state of flux internationally. The most visible indications for these developments are: in particular companies from high wage countries do recognize the importance of knowledge generation and knowledge management in production engineering. Production knowledge is being considered a most important intellectual property for a company. This includes organization, production processes and machines, metrology and products. As all major companies run production facilities all over the world also knowledge generation takes place globally. Therefore global co-operation in R&D is an major issue. CIRP provides an international network of acknowledged researchers in production engineering. So we are strategically in a perfect position to actively take part in this development and to shape the future of manufacturing.

Last year we initiated a workforce to figure out whether the current organization model of the academy is good enough to meet future requirements. This is an important issue and the answer to this question is still open. It needs good preparation and a comprehensive consideration of all strength, opportunities and weak factors. But the preliminary discussion has already revealed that the STC driven organization is highly successful. Nevertheless there might be some potential

for improvement. The workforce is still active and we will continue the discussion in Paris on the occasion of the January meeting. After this meeting we should have got a more clear view on this topic, which can then be brought to everybody's attention asking for reflection and input. Take this information as preliminary. I will keep you informed of the process.

The CIRP research affiliates have now officially been nominated. In this first stage we have 35 affiliates nominated. Thanks to everybody who sponsored one or even more young researchers. As announced the academy just delivers the framework and the platform for the work of these high caliber young people. They will organize their inputs to a high degree by themselves. We place our hopes in the creativity of the participants and will provide advice and any help, if needed. If we have received real experience with this approach we will spread more detailed information.

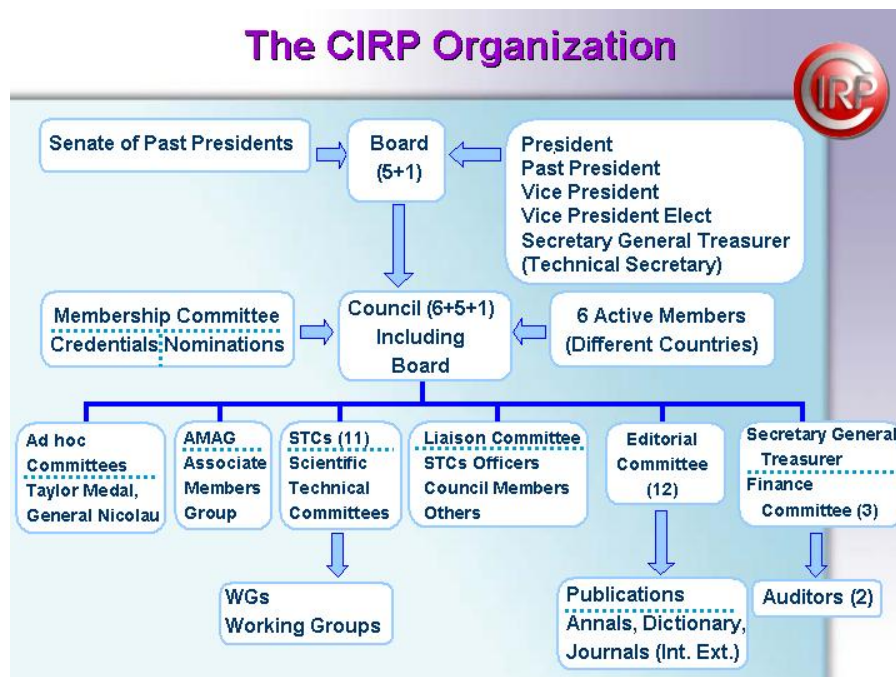
In our organization the transition from a College to an International Academy was smooth and very successful. We have received much more visibility in the science community. This applies particularly to other academies and research institutions and also to national science foundations. We take this as a good sign and the change to make selected contacts and to initiate first conversations. We should not expect too much in this early stage, but getting one another better known it might be a good start to evaluate whether there are subjects of mutual interest.

I wish all of you a good time and I am looking forward to meeting you on the next occasion.

Fritz Klocke

2. About CIRP

The **International Academy for Production Engineering (CIRP)** was founded in 1951 as **Collège International pour la Recherche en Productique** to stimulate research and education and to create international collaboration within selected fields of production engineering. In the passed 55 years CIRP has developed into a unique international organization covering many fields of production engineering. CIRP is the internationally most recognized organization concerning production engineering.



CIRP has about 500 members (Fellows, Associate Members, Corporate Members) representing over 40 countries. The unique contribution to manufacturing research is acknowledged by leading companies and research institutes, who provide active support through corporate memberships. CIRP is organized in Scientific and Technical Committees (STC's) which are responsible for the collaborative research:

- Studying new techniques and technologies;
- Organizing cooperative research, comparative testing and standardization;
- Collecting and analyzing bibliographies on manufacturing;
- Publishing synthesis reports on important technical problems;
- Organizing seminars and meetings on specialist topics;
- Preparing internationally accepted terminology;
- Contributing to International standardization organizations;
- Surveying the state of the art of research worldwide.

3. Personal

Professor Scott Smith receives Advancing Manufacturing award

Professor Scott Smith, Ph.D. of the University of North Carolina at Charlotte has been awarded the 2006 Charles F. Carter, Jr. Advancing Manufacturing award on August 14, 2007 in Baltimore, Maryland. Dr. Smith was selected to receive this award for his work to better manufacturing, in the areas of machine tool structural dynamics and the chip forming process and his accomplishments as a dedicated educator.



The honor was given by the Technology Issues Committee of AMT-The Association for Manufacturing Technology. A plaque recognizing his accomplishments was presented to Dr. Smith at this year's NCMS/AMT Manufacturing Technology Forum.

Dr. Smith's work to achieve a science-based understanding of the chip forming process has helped metal cutting manufacturers. His work in machine tool structural dynamics has led directly to the application of the high-speed machining and feasibility of production of monolithic airframe structures. As a dedicated educator and mentor to his students, both at the graduate and undergraduate levels, Dr. Smith has been able to attract the best and brightest students to the manufacturing discipline.

The Charles F. Carter, Jr. Advancing Manufacturing award is presented annually to an active faculty member teaching at an accredited U.S. university, who is recognized by AMT as contributing to the advancement of the industry by providing enabling research that has been put into practice, and who is most respected in providing highly qualified students.

AMT is one of our Corporate CIRP members in the USA. Contact: Paul Warndorf, pwarndorf@AMTonline.org

Professor Joseph McGeough Vice-President of the Institution of Mechanical Engineers



Professor J.A. McGeough has been elected as Vice-President of the Institution of Mechanical Engineers and will hold this office for the next three years. He becomes Chairman of its International Committee and a member of the Board of Trustees. He also serves on its Qualifications and Membership Board.

The Institution of Mechanical Engineers (IMechE) has been established in 1847 and is the leading body for professional mechanical engineers. With a worldwide membership in excess of 75,000 engineers, the IMechE is the United Kingdom's qualifying body for Chartered and Incorporated mechanical engineers. It is a democratic organization, operating under Royal Charter; the affairs of IMechE are decided by mechanical engineers from all disciplines and administered by nearly two hundred professional staff in London.

Professor Ekkard Brinksmeier elected as SME Fellow



In the spring 2007 Professor Dr.-Ing. habil. Ekkard Brinksmeier from the University of Bremen has been elected as Fellow member of the Society of Manufacturing Engineers, SME. For around half a million manufacturing engineers, executives and members in more than 70 countries the Society of Manufacturing Engineers is a source of knowledge, networking and skills development. Election as an SME Fellow is limited to a selected group of individuals each year, making it one of the most prestigious honours presented by the Society. The Fellow installation ceremony is on November 12th 2007 in Chicago.

Ekkard Brinksmeier, born 30.12.1952 is professor in production technology at the University of Bremen and director Fertigungstechnik of the Institute for Werkstofftechnik (IWT), Bremen. He has received the CIRP-F.W. Taylor-Medal in 1986.

Professor Leo Alting 'retired'



On August 29th, shortly after the General Assembly, there was a retirement colloquium held to honour Professor Leo Alting.

The decision to step backwards after 41 years of service in research and education has matured due to a reorganization of DTU as a consequence of a merger with other research institutions. This means that his department would undergo changes with focus on management, design and innovation, without the traditional manufacturing activities.

Professor Alting believes that building up a new department profile is a job for his successor, but he will not stop to work and will continue to contribute to the development of new future-oriented manufacturing research by doing consultancy work and continuing his work in CIRP as professor emeritus still with a high motivation!

His main topics are: Manufacturing Processes, Sustainable Production, Micro/Nano Production, Industrial engineering and management and Design and Innovation. He has supervised more than 60 M.Sc. thesis works and over 40 Ph.D. students.

Between the about 150 participants many CIRP colleagues attended the colloquium. Speeches were given by prof. Selinger from Berlin, van Houten from Enschede, mr. Kirk from Danfoss and by professor Klöcke who spoke on behalf of our Academy, memorizing Leo Alting's dedication to renew the CIRP strategy (mission, vision, goals), stronger leadership/management, a flexible topic structure, and a new recruitment policy which resulted in a sustainable network of young researchers affiliated with CIRP

From this place we will express our thanks and recognition for Prof. Alting's life work. We all wish him and his family all the best in this new period of life.



4. CIRP Research Affiliates

In January 2007 it was decided to create a *CIRP affiliated network* with young researchers, the CIRP Research Affiliates. The purpose of this network is to get access to young talented production engineers who could potentially become CIRP members. The Vision is to create a sustainable network affiliated with CIRP to promote and to develop upcoming young researchers in production engineering. In the mean time the Research Affiliates have been very active. All of them already registered on the website.

It is still possible to enter:

Every candidate **also Corporate researchers** should be proposed by a Fellow using a Research Affiliate Proposal Form as distributed by the secretariat to be returned to the CIRP Secretariat by e-mail only, before December 1st 2007). The Nomination Form can be downloaded from the web.

5. CIRP Journal of Manufacturing Science and Technology

As per our Council's decision, we have established the CIRP Journal of *Manufacturing Science and Technology (CIRP JMST)*. The Council decided to establish this new Journal, having as chief editor our colleague Professor Laszlo Monostori, who is also the chief editor for our Annals so as to have a good coordination between the publication of the Annals and the Journal. We think that the publication of this new Journal will enhance the visibility of the CIRP and will provide an additional forum for publishing high quality papers. The Journal will be fully controlled by CIRP, however, it will be open to outside contributions provided that they meet the strict editorial standards set for this Journal.

I am glad to announce that after a lengthy negotiation process, led from the CIRP side, by Professors Monostori and Dumur, our Publishing Committee has decided to work on this new journal with Elsevier, the publisher we also have for our Annals. Further details about the publication rules, editorial board etc, will be announced to you by Professor Monostori in due time. We will start publishing the Journal in January 2008.

George Chrysolouris (CIRP President 2006/2007)

6. Impact factor

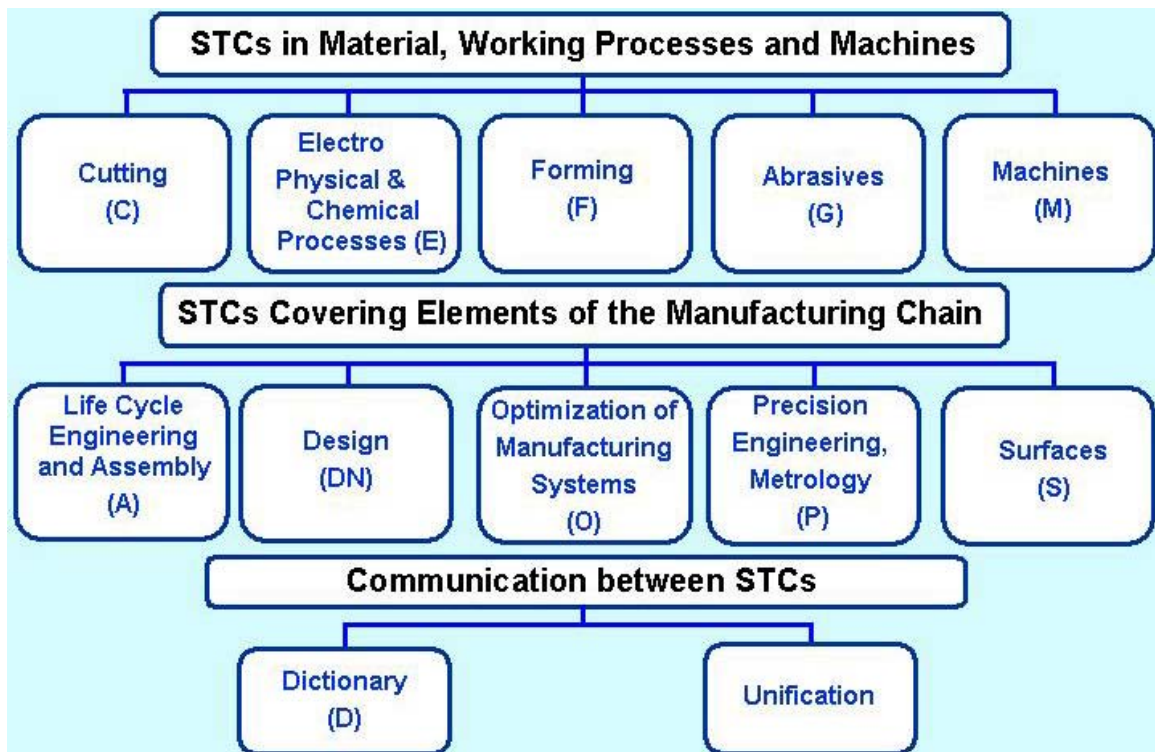
The Science Citation Index Impact factor which was decreasing from 0.974 in the first year to 0.973 in 2004 and 0.891 in 2005 has now increased to 0.989 with our new publisher. Detailed information is given on <http://portal.isiknowledge.com> , type there for the journals name CIRP ANN-MANUF TECHN. Also the number of cited articles has increased significantly. Elsevier has asked to pass their congratulations, especial to the editorial committee

From the ISI 2006 report:

Mark	Abbreviated Journal Title	ISSN	Total Cites	Impact Factor	Immediacy Index	Articles	Cited Half-life
□	CIRP ANN-MANUF TECHN	0007-8506	3066	0.989	0.046	153	>10.0

7. From the STC's

There are two kinds of STC's. Five STC's covering the Processes and Machine and five covering the Manufacturing chain as shown below.



Working groups

Working groups are considered to be one of the most effective and most important instruments for our joint work. To keep the high quality of this instrument but also to

consider the experiences made over the years it has been decided on a task force to check whether a revision on terms and conditions on how to establish a new working group should be considered. The task force's work is on a very nice progress. The work has nearly been finished. There should be a comprehensive proposal available by the time our January meeting is going to be held. As not to counteract the preparatory work of the task force it is recommend not establishing new working groups before the new proposal has been discussed.

Fritz Klocke

8. Corporate Members News

CMAG Meeting held on August 21th in Dresden

The meeting was chaired by the past president, prof Alting who counted 76 participants. Mr Minguez reviewed the topics and action points as discussed during the January CMAG meeting:

- To have an interactive website for CIRP through which issues can be put to the Fellows of CIRP, either direct to specific Fellows regarding papers or presentations or to Fellows and CMAG members on more general issues, possibly using a keyword search.
- The intention to publish a CIRP journal which would be peer-reviewed by CIRP but which would not limit publication to CIRP members. Presently, discussions are in progress with potential publishers
- A proposal to form a number of 'tracks' within CIRP which could accommodate new technologies and trends. This would involve a reorganization of the existing STC structure.
- A proposal to promote a network of CIRP-affiliated young researchers who would not attend the meetings but who might ultimately assume membership of CIRP – a proposal to help the succession of new members in to CIRP.

The use of the Forum page in the web was demonstrated by D. Dumur and J. Meijer. Now it can be used by the membership who asked for it.

Technical and Company presentations were provided by the following companies:

- VDW: Developments in German machine tool industry
- SIEMENS: Digital Factory, new trends
- WROCLAW UNIV. Rapid Prototyping
- VEMAS: Process chains for power train components
- SCHNEEBERGER: Mechatronic linear bearings with integrated scales
- NILES SIMMONS: Turn Milling
- STARRAG-HECKERT: Aerospace challenges for machine tool industry
- TRUMPH: Disk laser technology
- PROFIROLL: Precision rolling of automotive gears

Prof Chryssolouris mentioned in his presidential address that the goals as expressed in the January meeting are achieved:

- The web site has been renewed with a forum page where the associate members can post their questions.
- A new CIRP Journal has been established
- Young research affiliates can enter the CIRP organisation now (age under 36, duration 3 years). It is also open for excellent researchers from industry; they have to be proposed by a CIRP fellow. The next round closes December 1st.
- Restructuring of the STC's is on its way.

All CMAG presentations are available on the web.

During the Corporate Members Lunch it was proposed to have also the keynote presentations available on the web. The presentations often contain more and detailed information and it was easier to convince the management to go into new directions when supported by some well prepared overview sheets as shown during the presentations.

Keywords

The keywords as they appear in the annals are a measure how the research focus moves. The most 10 frequent used keywords are given in the table, showing increased interest in Forming and Design. Surface Technology is most stable (3 years in the top 3). The numbers represent the number of papers characterized by that keyword.

2005:	2006:	2007:
18 Cutting	15 Surface	12 Forming
13 Tool	11 Control	11 Design
10 Surface	10 Micromachining	9 Surface
10 Grinding	9 Forming	9 Grinding
10 System	9 Optimization	9 EDM
9 Design	9 Production	9 FEM
9 Forming	8 Grinding	9 Product
7 Control	8 Manufacturing	7 Cutting
7 Manufacturing	7 Design	7 Sheet Metal
7 Machining	7 FEM	7 Management

9. The GA in Dresden



The General Assembly in Dresden is history now, with 622 participants it was the biggest GA since ever.

Below some impressions and a short flashback by prof. Neugebauer.

Dear CIRP Friends,

Two months have already passed since our time together in Dresden. We trust you all had a safe return home and that life has resumed with a rejuvenated energy to pursue our research work in production technology.

As always, it is the scientific contribution made from the global CIRP community which truly characterizes the success of a CIRP General Assembly and this year was no exception. The keynote papers, STC and Working Group sessions, as well as the CMAG meetings highlighted some of the world's key scientists and industry partners and gave all participants new insight,





information and experience to further their individual work in production engineering.

From my perspective as Chairman, the 57th CIRC General Assembly was a wonderful experience. We were overwhelmed by the interest expressed in the meeting with a total of 485 delegates and 137 Accompanying Persons from a total of 39 countries. This was a very pleasant surprise for the

entire German CIRC delegation as this was the fifth time a CIRC General Assembly was held in Germany. We were also very pleased to experience such a strong resonance from industry whose involvement integrated the application-oriented interests that our work aims to meet.



The social events and Accompanying Persons' Program also went according to plan and we were pleased to be able to include some of Dresden's most famous cultural sights in our program. The Assembly Dinner provided us all with lasting memories thanks to the CIRC Band and the audience involvement in the show. Another one of the week's highlights was the visit to the Fraunhofer

Institute for Machine Tools and Forming Technology IWU in Chemnitz. This was an excellent opportunity for participants to learn more about the research work and developments of the entire German CIRC delegation, as well as to experience firsthand the facilities and equipment used in our work.

On behalf of the entire German CIRC delegation thank you all for making this week



so successful and so memorable. It was an honor for me, personally, to chair this important event in my hometown and I will look back on our week with very fond memories and with pride in my membership in the CIRC community.

Reimund Neugebauer, Chairman of the Organizing Committee
57th CIRC General Assembly

The F.W.Taylor



Medal



Professor Livan Fratini (University of Palermo) received the 2007 Taylor Medal for his 2006 paper "Friction stir welding of tailored blanks: Investigation of process Feasibility" *Annals* Vol 55/1, pp 279-282.

The President prof Chryssolouris underlined the uniqueness of this work which is rarely known from the scientific literature up to now. Based on this work effective TWB's will be produced even working with unweldable or difficult to be weld materials such as the considered aluminum alloys. This work has great scientific and practical value.



Professor Xiadong Lu, of the University of British Columbia is the recipient of the 2006 Taylor Medal for his paper "Ultra Fast Tool Servos for Diamond Turning," which was presented at the 2005 GA in Antalya

This paper presents new classes of fast tool servos for extremely high performance motion control of a diamond tool. Such fast tool servos enable the rapid production of diamond turned surfaces for optics with very short spatial wavelengths. Examples are molds for refractive and diffractive optical elements, off-axis and asymmetric optics, surfaces on large rolls for optical films, contact lenses and eye lens implants.

The 2007 General Nicolau Award



Dr. Yoshiharu Inaba, CEO of Fanuc Company has received the most prestigious CIRP award, the General Pierre Nicolau Award.

There is no need to say that Fanuc is one of the companies leading the CNC industry in the world. Fanuc is distinguished from other companies mainly with their leadership. Fanuc was totally created by the vision of senior Dr. Inaba and present CEO Dr. Yoshiharu Inaba.

Dr. Inaba received his engineering experience first in ISUZU Motor Company before joining Fanuc to lead the development of Injection Molding Machine Control unit. He then led the development of famous Robo Cell Automated Machining System. The foundation of unmanned factory and most extensive use of robots in manufacturing was laid under his leadership. He received a number of awards and distinguished prizes for this pioneering technology, which is recognized world wide.

Dr. Inaba took over FANUC's leadership four years ago, its sales increased by additional 80%, reached to \$3.8 Billion Dollars. Such an accomplishment can be achieved only through strong leadership backed by the understanding of engineering principles, managing advanced technology and openness to innovation. Dr. Inaba has a proven track record to meet all of the leadership during his long engineering career as a distinguished leader.

Earlier recipients of the General Nicolau Award are:

- | | | |
|------|---------------|-----------|
| 2001 | J. Milberg | (Germany) |
| 2002 | M. Mori | (Japan) |
| 2003 | F. Bernard | (France) |
| 2005 | S. Wertheimer | (Israel) |
| 2006 | N.P. Suh | (USA) |

10. From the secretariat



Chantal Timar-Schubert



Agnès Chelet

Flyers for Corporate membership

New Flyers to recruit new Corporate Members are still available at the Secretariat.

Meeting place in Paris

Delegates were very happy with our January meeting place "la Mutualité" last year, so it has been booked for the next January meetings.



11. The new CIRP website

You're not on the Members list automatically!

The renewed website is now completely ready and fully in use. This release is a modern systematic and interactive system. Most but not all have completed their registration yet. After validation by the Secretariat, you can use (and modify) your username and password chosen by yourself, and complete your profile (your picture insertion should be validated by the Secretariat, for security). You will select yourself which information is given to the "public" site and which information should be only for the members.

Via the website you have direct access to ScienceDirect for papers from 2007 back to 1995. For older papers (back to 1980) you have still access to the papers online on our CIRP website. What's also new is that the Submissions of papers will be through Elsevier Editorial System.

You're not on the members list automatically. When your name does not appear in the online Members Lists, maybe you forgot to register. There is no automatic connection with the CIRP Directory containing all names.

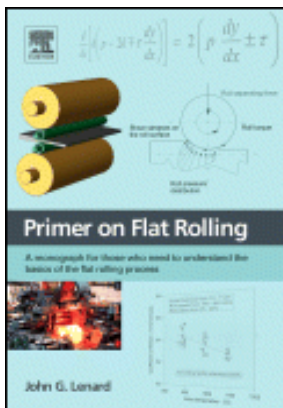
Some figures of those who already registered and appear in the "Members Lists":

121	Fellows	(out of 150)
102	Associate members	(out of 126)
19	Honorary members	(out of 28)
37	Fellows Emeritus	(out of 104)
60	Corporate members	(out of 147)
43	Research Affiliates	(out of 43)

12. New books received

- Primer on Flat Rolling

By **John Lenard**, University of Waterloo, Department of Mechanical Engineering, published by Elsevier, in June, 2007.



Primer on Flat Rolling is the outcome of over three decades of involvement with the rolling process. It is based on the author's yearly set of lectures, delivered to engineers and technologists working in the rolling metal industry. The essential and basic ideas involved in designing and analysis of the rolling process are presented. The three components of flat rolling: the mill, the rolled metal and their interface are discussed and illustrated in detail. New processes are also mentioned; flexible rolling and accumulative roll-bonding. The last chapter contains problems, the solutions of which will aid in appreciating the complexities

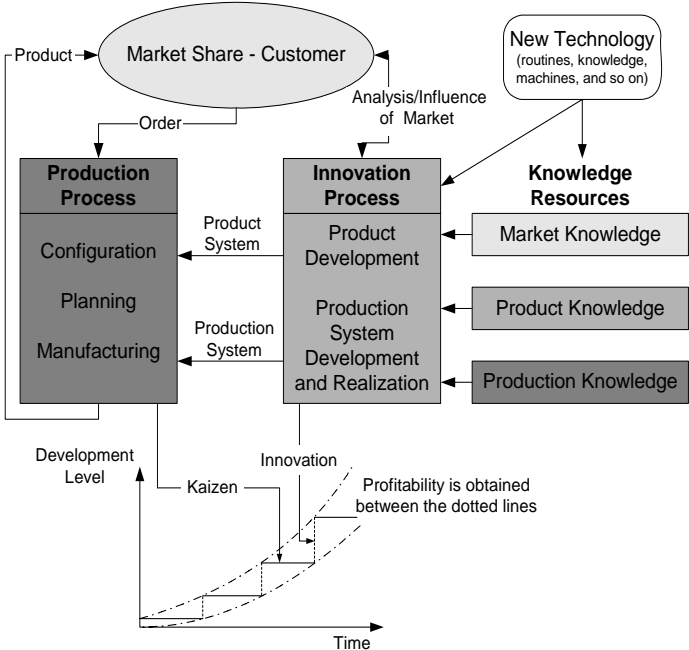
of flat rolling. The aim is to introduce the engineers, technologists and students to the background of this field to ease their planning and analyzing of processes.

Imprint: ELSEVIER, ISBN-13:978-0-08-045319-4, ISBN-10:0-08-045319-8

- The Nature of the Industrial Innovation Process.

This book has been written by **Gunnar Sohlenius** as a contribution to industrial engineering as a whole. The main objective is to increase the understanding of the fundamental mechanisms, which are necessary in order to increase welfare by industrial production within the carrying capacity of our planet. Industrial production plays an important role in improving our lives. Economic growth, competition and profit are important items in this mechanism; however, they are not

really the main reason for the importance of industrial production. The perspective of this book is industrial production as our engine of welfare considered to reflect the main importance of industrial production.



Axiomatic Design is regarded as the most fundamental general principle and is used as a base to understand goal-definition and decision-making in innovative industrial processes. The main focus is on the systemic nature of industrial engineering and, primarily, the innovative process, where products and processes are designed and developed in order to make productive fulfilment of customer's needs possible. By improving the understanding of such industrial processes elements from design theory, which are considered especially relevant, they are used in order to create a scientifically based knowledge of industrial engineering as a whole.

Defining the science of engineering has been a long-term ambition of the author. This new book assists the understanding of industrial production as our main engine of welfare. In the search for principles and theories as a scientific and useful base for engineering, the author proposes elements from Axiomatic Design originally proposed by Nam P. Suh, Theory of Inventive Problem Solving, TRIZ, by G. Altshuler and Robust Design by G. Taguchi. Structured Analysis and Design Technique by D.T. Ross and Theory of Connections by O. Bjorke are also considered. It has been inspired from a deep and long lasting exchange within CIRP. Special mention should be made of the late Dr M.E. Merchant, known to all Cirp colleagues as the father of the Computer Integrated Manufacturing System Concept.

Gunnar Sohlenius is professor emeritus at the Royal Institute of Technology, KTH, in Stockholm and Past President of CIRP, is publishing his book via Coxmoor Publisher in the UK. ISBN: 978-1-901892-23-9 bookorders@coxmoor.com Cirp members are entitled to a 20% pre-publication discount.

13. Meetings, Conferences, Seminars

All CIRP and CIRP sponsored conferences are listed in the table in chronological order. There is a hyperlink from the conference name to the website providing all details about that particular conference.

2008	Conference	Place
10-13 February	IPAS' 2008 - 4th Intl Precision Assembly Seminar	Chamonix, France
17-19 March	15th CIRP Life Cycle Engineering Conference	Sydney, Australia
17-20 March	XIX Workshop on Supervising and Diagnostics of Machining Systems	Karpacz, Poland
7-9 April	18th CIRP Design Conference	Enschede, Netherlands
9-11 April	1st Conference on Knowledge Management in Product Development	Enschede, Netherlands
28-29 May	8th International Conference on High Speed Machining	Darmstadt, Germany
26-28 May	41st CIRP Conference on Manufacturing Systems	Tokyo, Japan
12-13 June	3rd International Conference on High Performance Cutting	Dublin, Ireland
7-9 July	9th ASME Engineering Systems Design and Analysis Conference	Haifa, Israel
23-25 July	6th CIRP Intl Conference on Intelligent Computation in Manufacturing Engineering.	Naples, Italy
3-4 September	1st International Conference on Process Machine Interactions	Hannover, Germany
16-17 September	11th CIRP Conference on Modeling of Machining Operations	Gaithersburg, USA
21-23 September	2nd CIRP Conference on Assembly Technologies and Systems	Toronto, Canada
1 October	CIMEC	Nantes, France
5-7 November	TRIZ Future' 08	Enschede, Netherlands
2009		
1 January	42nd CIRP Conference on Manufacturing Systems	Grenoble, France
26-27 March	CIRP Tolerancing Conference	Annecy, France
30-31 March	19th CIRP Design Conference	Cranfield, UK
2-3 April	Intl Conference on Burrs-Analysis, Control and Removal	Kaiserslautern, Germany