
**INTERDISCIPLINARY LINKS, INTEGRATIVE APPROACH, HEURISTIC METHODS
AND ARTIFICIAL INTELLIGENCE IN THE MANAGEMENT OF INNOVATION -
PART 1**

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Abstract: In this first work, out of the total of twenty-four, are considered: Integrative approach, interdisciplinary relations and transnational language in the technical and economic fundament of engineering and management, for the purpose of competitive innovation and successful business. Approaches to develop the innovation with a high degree of complexity. Interactive heuristic methods and algorithms for inventive activity, for inspiring and developing new industrial products and services for households and production systems. Implementing an effective business vocabulary for organizational renewal. Introduction of gaming and "art" methods in innovation management. Intensifying innovation activities through an attempt to introduce artificial intelligence into teamwork, with simultaneous implementation of an engineering and non-engineering approach...

Keywords: Integrative approach, interdisciplinary relations, transnational language, technical and economic foundation of engineering and management; competitive innovation and successful business; approaches to develop innovations with a high degree of complexity; interactive, heuristic methods and algorithms for inspiration and development of new industrial products; effective inventive activity; an effective business vocabulary for organizational renewal; gaming and "art" methods in innovation management; intensifying innovation activities and attempting to introduce artificial intelligence into teamwork with an engineering and non-engineering approach.

1. INTRODUCTION

The main components of the management work (not just four, according to many authors), are: Ambition to Competence and Enhancement; head of functions; Role in the organization - Leader; Organizational experience and orientation in the market environment; Documentation and qualified work with it; Innovative potential and image; Technical culture and intervention in real technological processes; Expert in the field but with elementary general culture; Special knowledge and skills, such as the ability to protect intellectual property, project development, economic base [1] ...

What is not fully covered in today's scientific innovation management work:

1. Integrative approach, interdisciplinary relations and transnational language on the technical and economic basis of engineering and management for competitive innovation and successful business.
2. Approaches to develop innovations with a high degree of complexity. Interactive and heuristic methods and algorithms for inspiration and development of new industrial products and services for households and production systems.
3. Effective inventive activity. Implementing an effective business vocabulary for organizational renewal.
4. Paradigm of vocational training in this area. Introducing gaming and "art" methods in innovation management.
5. Intensifying innovative activities by attempting to introduce artificial intelligence into the teamwork of engineers and not engineers,
6. WEB-based specialized company and professional formation, development of software platform for electronic and distance learning ...

IT IS NECESSARY TO DEVELOP A NEW HOLISTIC PARADIGM OF THE INNOVATION PROCESS

This book [1] discusses a large number of issues and necessary procedures, methods and techniques for the innovation process and the implementation of inventions in production.

2. EXPOSITION

Deepening in innovations can only take place if earlier, degraded, archaic structures, technical departments, and requirements change, according to the proposed or similar paradigm of the innovation process here. Serious preparation is needed. There are all grounds for establishing a new, international interdisciplinary European Professional Institute (EPI), epicentre for forming, fundamental studies and applied development, with an artificial intelligence, in business, technology and economic sciences, management of innovation, design a new "V" theory [2]. The current work is intended to stimulate and develop the management of innovation activities, including: from market research, through the capabilities of the company and its team to the development and engineering of innovation with a medium or high level of complexity. They have to combine, both a professional instructor and an

entertaining, business game party. As a mediator between a learner and a teacher, a leader and a member of a heuristic team, the WEB application will be included. One of the many examples is given.

The book [1] has developed an epistemological and methodological toolbox that can be used by anyone interested in innovation. While, in most cases, the authors reach imaginary innovation, here realistic researches and developments can be made that are capable of being implemented immediately in practice.

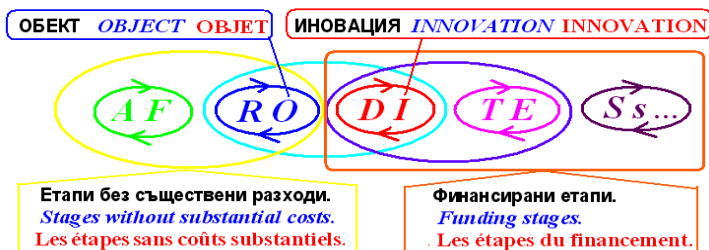


Figure 1. Holistic paradigm of the process of innovation.

Take a look, after figure 1, figures 2-5. In the next works of the author, rest of the paradigm and corresponding algorithms for small, medium and large enterprises are given.

3. CONCLUSIONS

The engineering point of view here is broken through the capabilities of the leader and not the engineer, but vice versa. **Note.** The text of the figures - French - Bulgarian - English. Often, activities related to the development of new products and services are seen as side-by-side, as opposed to the core activities that are the familiar functions of each firm: marketing and sales, accounting and finance, administration, supply and logistics, etc. But fundamentally, innovation management must be closely tied to the strategy of the company. Given that it sets goals and vision in the long run, then innovation management must provide a sustainable and competitive advantage that will ensure that the strategy is implemented and profit is secured. The works of the author received support and recognition in other countries [1, 2, 3 and others].

The proposed work, which is the first of the long series, is intended for a wide range of readers working and interested in the issues of scientific, development and real innovation. The series is also of interest to managers of ambitious manufacturing companies and organizations in the sphere of services. The articles can be used by lecturers in universities who want to attract young people with development interests to carry out innovation activity in companies after graduation. In a trilingual presentation of the paradigm of innovation processes (languages respectively French, Bulgarian and English) and the established "lexicon" business, international teams can be created, creating a favourable environment for creating and disseminating innovation.

LITERATURE

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Figure 2. Example of an overall organization of an innovation process.

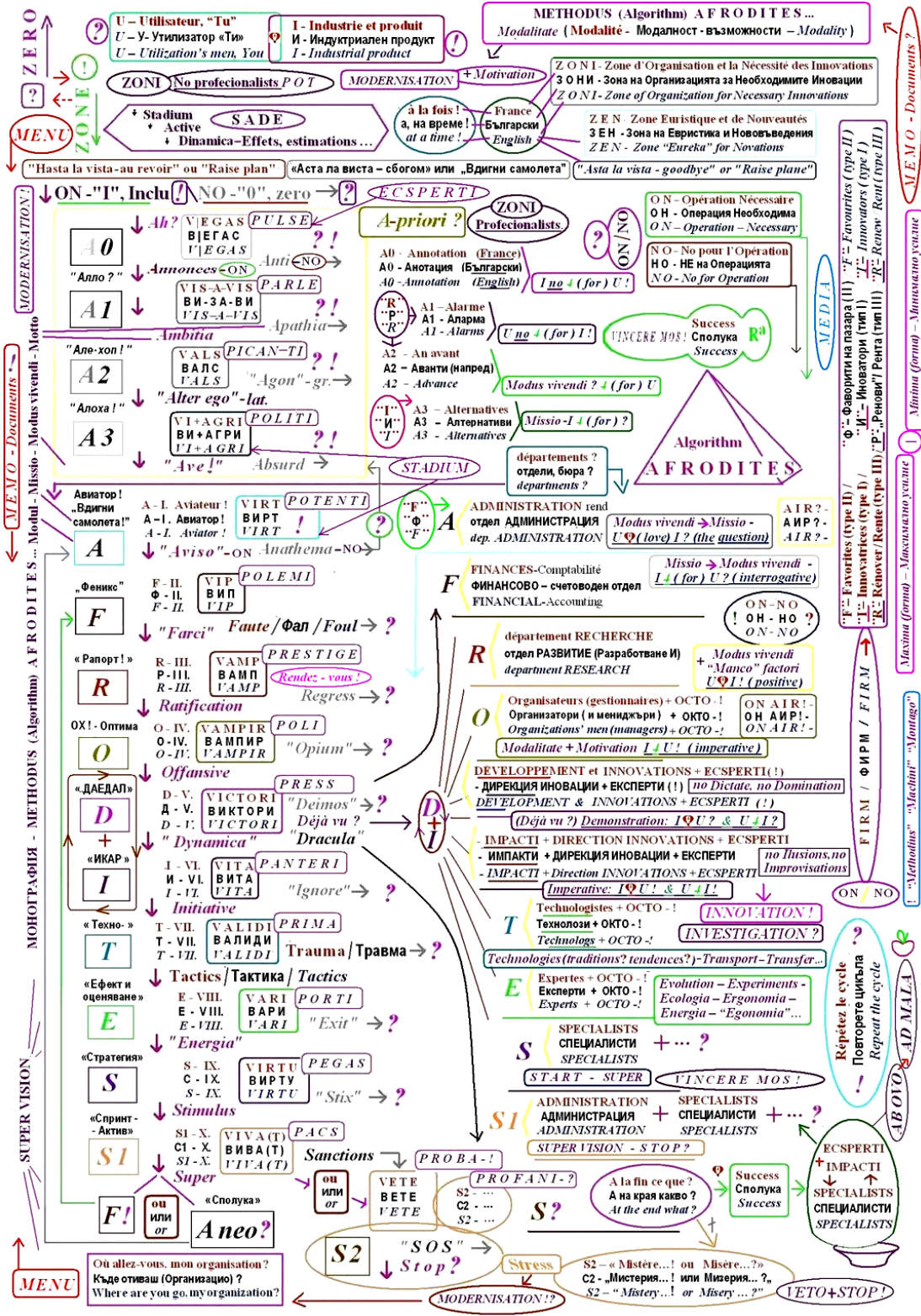


Figure 3. Starting the paradigm of the innovation process in "business game".

<u>VACANCE POUR CONTENU (fr.)</u>	<u>ВОЛНО СЪДЪРЖАНИЕ (бълг.)</u>	<u>VACATE CONTENT (engl.)</u>
<u>EPI – graphe – « quo vadis – lat. »</u>	<u>Où allez-vous ?!</u>	<u>Where are you go ?!</u>
<u>Préambule et avant propos / (Française)</u>	<u>Предговор и въведение / (Български)</u>	<u>Preamble (Preface) and Introduction (English)</u>
<u>A priori = A0 + A1 + A2 + A3</u>		<u>(lat. – color violet)</u>
<u>« Ah ! »</u>	<u>« Vegas – hasarde » ou (l) Exactitude des Gestionnaires, Administrateurs, Spécialistes... ?</u>	<u>- V I E G A S</u>
<u>Attractions - « Vegas – hazard » или (l) Екзактност на Генералното ръководство, Администрацията, Специалистите... ?</u>		<u>- В I E Г A C</u>
<u>« Mines ? »</u>	<u>« Vegas – hazard » or (l) Exactitude of General managers, Administration, Specialists... ?</u>	<u>- V I E G A S</u>
<u>Acronyms - V A N - « Vandales » ou Avant-garde pour Nouveautés ? ou V E N - Valut et (risque) Eventualité – Nouvelle !</u>		
<u>Allegorias - В A H - « Вандали » или Авангард за Новостите ? или В E H - « Венчър » - Валутен риск, Евентуално Нов !</u>		
<u>Associations - V A N - « Vandals » - Advance guard or for Novelties ? or V E N - Venture - Eventual New !</u>		
<u>V U L G A R I – Vulgarisation et Utilisation d'un Lexico des Gestionnaires et Administrateurs a la Réalisation des I</u>		<u>- A priori - ?</u>
<u>В У Л Г A P И - « Вулгарен и Утилизиран - употребяван » Лексикон на Генералното р-во и Администраторите при Реализация на И – Априори ?</u>		
<u>V U L G A R I – Vulgarized and Utilized the Lexicon of Generality and Administrators in the Realizations of I</u>		<u>- A priori - ?</u>
<u>No professionals- P O T – Professions (Persons) Orientent vers la Technique... / Firms type IV - M – Minimum activité – «ZOMBI»</u>		
<u>► П O T – Професии (персони) Ориентирани към (обвързани с) Техниката... / за Фирми тип - IV – M - «Минимум актив» – «ZOMBI»</u>		
<u>P O T – Professions (Persons) and Orientation to the Technique... / for the Firms type IV - M – Minimal activity – «ZOMBI»</u>		
<u>▼ Mediae parte Abstractions - Profession : P U L S I ; P A R L E ... (vide etiam Acronyms)</u>		
<u>A0 - «AH» = Acceleration + Harmonisation - Annotation et ANTI - (vide Acronyms) Ou – A1 – Alarme et V A R I - A N T I</u>		
<u>« Vis-à-vis » avec l'Industrie et des Structures de l'Administration, Valorisation des I et SISTEMI</u>		<u>- V I S - A - V I S</u>
<u>A0 - «AX» = Акселерация + Хармонизиране - « Mimes ? » - Анотация и АНТИ - Или - A1 - Аларма и В A P I – A N T I</u>		
<u>« Визави – лице в лице » с Индустрията и Структурите на Администрацията, Важност (ценност) на И и СИСТЕМИ - В I - З A - В I</u>		
<u>A0 - «AH» = Acceleration + Harmonization Aviso - Annotation and ANTI - Or - A1 - Alarms and V A R I - A N T I</u>		
<u>« Vis-à-vis » with Industry and the Structures of the Administration, Valorization of I and SISTEMI</u>		<u>- V I S - A - V I S</u>
<u>Moda? I no 4 (for) U ! P U L S I ? (vide etiam Acronyms) Ou – Или - Or - U no 4 (for) I ! P A R L E !</u>		
<u>« Masque ? » V I O - « Violences » - Incidents et Obstructions (dans l'Organisation) - ? - pour les firmes « R » - Rente / III.B /</u>		
<u>Men+virus! В I O - Възможни Инциденти и Обструкции (пречки в Организацията) - ? - за фирми « R » - Рента / III.B / - « ЗИП - ЗАИ »</u>		
<u>Managers ? V I O - « Violence - Incidents and Obstructions (in the Organization) - ? - for firms R – Rent / III.B / - « ZIG-ZAG »</u>		
<u>V E G E T I – Végétation dans l'Escalassions - Gestion, Ergonomie, Technologies et Investissions – départements... ? - Ou – V O T E ?</u>		
<u>В E Г E T И - „Вегетирание“ при Ескалиране – Генерално ръководство, Ергономия, Технологии, Инвестиции - отдели, бюра ? - Или – В O T E ?</u>		
<u>V E G E T I - «Vegetation» in Escalation – Generality - Gestation, Ergonomie, Technologies and Invests – départements... ? - Or - V O T E ?</u>		
<u>V I R G O – ? – Vocabulaire Industrielle et Réalisation (Roulier) de la Gestion (ménage) d'Organisations</u>		<u>- Apriori - !</u>
<u>Mobile? В I P P O - ? - Виртуален Индустриален Речник за Градене (и Ръководене) на Организацията (асоц. Съзвездие Дева) – Априори !</u>		
<u>V I R G O – ? - Vocabulary for Industry and Realization (Rule) of the Generation in the Organizations</u>		<u>- Apriori - !</u>
<u>A2 - An avant «Metamorphose ?» - „Valse” (la dance) Valorisation des Administrateurs et Leaders pour le Succès - V A L S</u>		
<u>A2 - Аванти (напред) - „Валс” (ганцът на) / Валоризация на Администратори и Лидери за Сполука</u>		<u>- В A Л C</u>
<u>A2 - Advance Anecdotes ... - «Vales» (the dance) / Valorization of Administrators and Leaders for Success</u>		<u>- V A L S</u>
<u>Modus vivendi? ? 4 (for) U (U – Utilisateur, «Tu» / U – Utilisateur «Тя» / U – Utilization's men, You) Profession - P I C A N + T I !</u>		
<u>V A G U E – Vagues parmi (Vérification) des Administrateurs et Gestionnaires pour Union et Evolution</u>		
<u>В A Г Y E - «Вълнение - Верификация» на Администраторите и Генералното ръководство за Управлението (Единоначалие)</u>		
<u>V A G U E – « Verification - Vague - non regularity » of Administrators and Generalists for Unanimity and Evolution</u>		
<u>V A G - N O - Vagabondes – Anti-industrialistes et Gestionnaires - NO V I C T I (dans SI) - pour «R» - Rénover / III.A / - «ZEBRI»</u>		
<u>В A Г - H E - Вагабонти – „Анти - индустриалци” и Генерални ръководители – H E В И К Т И (в C1) - за « R » - „Ренови” / III.A / «ZEBRI»</u>		
<u>V A G - N O - Vagabonds – Anti - industrialists and Generalists - NO V I C T I (in SI) - for «R» - Renew / III.A / - «ZEBRI»</u>		
<u>V I R ? – Vocabulaire Internationale pour Réalisateurs - NO V U L G A R (dans SI) et NO P I C - A N T I ?</u>		
<u>Mobile! В I P ? - (асоциация с «възможен») Виртуален Интернационален Речник - H E В У Л Г A P (в C1) и H E П И К - A N T I ?</u>		
<u>V I R ? – Vocabulary for International Realizations - NO V U L G A R (in SI) and NO P I C - A N T I ?</u>		
<u>A3 - Alternatives - Voyage dans l'Industrie – Administration, Gestion, Réalisation des I (vide etiam Acronyms) – V I + A G R I</u>		
<u>A3 - Алтернативи - Въведение „Воайж” в Индустрията – Администрация, Главно ръководство (съкр. Гл. р-во)</u>		
<u>«Memoriam ?» (Господстващия, «генералитета», „гида”, Генерален директор, „Главния”), Реализатори на И – В I + A G P I</u>		
<u>A3 - Alternatives - Voyage in Industry – Administration, General managers, Realizations of I</u>		<u>- V I + A G R I</u>
<u>(Viagra – stimule! Виаграта - стимулира! Viagra – stimulate!) Managers! - MODERNISATION ? - A + M E N !</u>		
<u>«Megachance ?» A V E N I R (avenir) et «Raiser plan» ou «Hasta la vista – au revoir» - / „Asta la Vista – esp.” /</u>		
<u>A B E H I P (бъдеще – фр.) „Вдигни самолета” или «Аста ла виста – с богом» A V E N I R "Raise plane" or "Asta la vista -goodbye"</u>		
<u>Missio? I 4 (for) ? (I - Industrie et produit / И - Индустриален продукт / I - Industrial product / Profession - P O L I T I</u>		
<u>V I A – «Via» Valeur du I et Analyse (ou AV – méthodique française) – pour les firmes «I» - Innovatrices (type I) - «ZEFIRI»</u>		
<u>В I A – «Вървим през» Валоризация на И (стойностен анализ) и Анализи (AB) - за фирми «I» – Иноватори (тип I) - „ЗЕФИРИ”</u>		
<u>V I A – «Via» Value of the I and Analysis (AV – French méthodique) «Archaisms?» - for «I» - Innovators (type I) / «ZEFIRI»</u>		
<u>V O C S – «Vox populus» Voix dans l'Organisation pour Concurrence des SISTEMI (et les produits Industrielles) - V E N I R (venir)</u>		
<u>В O K C - „Вик” („Вок попули” = глас народен – глас божи) в Организацията за Конкурентоспособност на СИСТЕМИ - В E H I P (идване)</u>		
<u>V O C S - «Vox populi – vox dei (lat.)» Voices in the Organization for Concurrence the SISTEMI (and Ind. products) - V E N I R (advent)</u>		
<u>V I B R O – Vocabulaire Industrielle pour le Business et la Réalisation des Organisations (et Administrateurs) – «Vibration» - V O T E !</u>		
<u>В I B P O - Виртуален Индустриален и Бизнес Речник за Организацията (и Администратори) (асоц. Вибро – вибрации - !)</u>		<u>- В O T E !</u>
<u>V I B R O – Vocabulary for the Industry and Business of the Organizations (and Administrators) - «Vibrations» - MEMO - DOC? - V O T E !</u>		
<u>Départements, bureau... ? «Департаменти», отдели, бюра, секция, сектор ... ? Departments... ? (vide etiam)</u>		
<u>(vide etiam Acronyms) A V E pour EPI – EVA ? / ABE за EPI - EVA ? / AVE for EPI - EVA ?</u>		

Here is an epistemological and methodological toolkit that can be used by anyone interested in innovation. While, in most cases, a number of authors have reached an imaginary innovation, realistic developments that are capable of being implemented directly into practice come to the fore. The works will be useful for learners on innovation issues - PhD students, masters and students.

Figure 4. An example of starting a small business innovation process.



Figure 5. Part of the innovation process, for medium and large enterprises, in the first phase "A".

