

Applied Inventive Thinking

Solution Overview



Introduction

Virtually every organization with whom Inovent Applications has worked since 1999 suffers from the following disease: Being chained to traditional problem solving methods as well as to popular ideation techniques, despite the fact that these are not proven to be effective.

The results of this phenomenon are problems poorly solved, lower than expected performance improvements, difficulties in creating and maintaining strategic advantages in the marketplace and chronic "fire-fighting" instead of meeting organizational objectives.

Once the obstacles that hinder the organization's creativity are removed, profound and long-lasting performance improvements are generated as a solution to the above-mentioned problems as well as to other challenging issues.

Please read carefully the following questions:

- What impedes organizational creativity?
- What issues hinder problem solving effectiveness?
- Is it feasible to compose hitherto unheard of solutions to tackle previously unsolvable problems?
- If so, is it possible to do so rapidly, with a minimum of risk while simultaneously creating a sound, reliable problem-solving basis for future challenges to be met?

In an effort to shed light and answer the aforementioned, as well as other questions, Inovent's staff has compiled information from three different sources: Inovent projects, original research and existing resources. This Paper provides, by way of case studies, an introduction to the theory of Applied Inventive Thinking (AIT) and its utilization.

The paper will detail how AIT concepts are applied within organizations as a whole and on a departmental basis. In order to do this, three cardinal areas must be dealt with:

1. For which processes and problems do companies apply AIT?
2. How do companies apply AIT within their own organization?
3. What benefits can companies realize from applying AIT concepts?

The Medical Doctor as a Problem Solver

The Theory of Applied Inventive Thinking (AIT) improves organizations and systems through harnessing principles used in the hard sciences. In order to understand the power of AIT in solving problems, let us use the analogy of a medical doctor treating a patient.

When treating a patient, a doctor employs a systematic approach realized through working in a routine procedure. This procedure consists of the following phases:

- Phase 1 - Diagnosis: A doctor begins with a series of probing questions and examinations. The data collected in this phase (i.e. symptoms) is used for identifying and subsequently tracking the disease which is the underlying problem that causes the patient's complaints.
- Phase 2 - Search for a cure: Our dedicated doctor will now proceed and construct a series of remedial actions aimed at curing the patient (e.g. drug prescriptions, surgical procedures, physical therapy, etc.). The uniqueness of the disease will affect the shape of the treatment plan and the time needed for forming such a plan, i.e., if the disease is well known a short check-up would be adequate for providing the needed treatment. However, should the symptoms be ambiguous, unique or unexplainable, a "trial and error" mode of treatment shall be employed. Furthermore, once alternative approaches are suggested for treating the patient, the doctor can then analyze the different possibilities and prioritize them.
- Phase 3 - Implementation: The process concludes in a final decision rendered by the doctor and in its implementation thus curing the patient.

As with the doctor-patient analogy, AIT processes are used to solve any problem and improve organizational health.

Applied Inventive Thinking - OVERVIEW

Purpose of AIT:

AIT solves problems and provides solutions where other methods were found to be ineffective.

- At the strategic level, AIT grants the organization a competitive edge, enables the improvement of short-term revenues, improves bottom line results and expedites the attaining of strategic goals.
- At the operational level, AIT solves problems and provides solutions which meet organizational constraints connected to budget, time and personnel. Additional advantages offered by AIT projects are the following: quick response times, short Time to Market and the ascertaining of significant measurable yields in accordance with preliminary planning and forecasting.

Benefits of AIT:

Companies implementing AIT methodology enjoy the following benefits:

Enhanced productivity in Problem Solving

AIT requires companies to employ systematic analyses of root problems. By sharply focusing upon these root problems companies free themselves from business gridlock thus configuring real solutions to real problems related to marketing, new product development, technology, business strategy and other significant issues.

Shorter Time To Implementation (TTI)

AIT harnesses in-house technology, the company's own knowledge base and its other unique strengths in promoting research, development and the ultimate resolution of problematic issues. The utilization of in-house capabilities a priori eliminates many of the obstacles that frequently stand in the way of successful implementation of solutions. Ultimately, the necessary TTI of the chosen solutions is dramatically reduced.

Significant cost reduction

Companies realize cost savings by minimizing the number of flaws in their business processes. They eliminate improper or ineffective procedures and consequently decrease wasted resources required to compensate for poor execution of business processes.

Leading edge creation

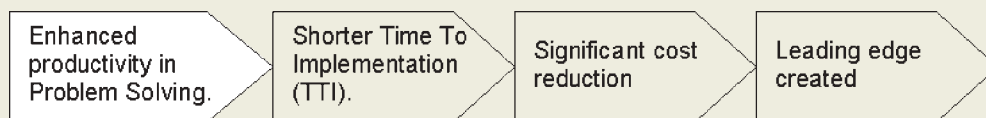
implementing AIT allows companies to become better fit to compete in the marketplace, improves profitability and prepares the company for the future. Furthermore, proactive actions derived from AIT projects frequently catch the competition unprepared and stymie competitor reaction.

AIT IN ACTION

CASE STUDIES

While applications and objectives of AIT may vary, companies typically employ AIT to achieve the following objectives:

- enhanced productivity in problem solving.
- shorter Time To Implementation (TTI).
- significant cost reduction.
- leading edge creation.



Enhanced productivity in problem solving.

AIT presents an algorithm which leads companies in configuring solutions. The configuration process, analytic in nature, redefines the problems, isolates their variables and exploits manipulation factors intended to create new connections between the problem variables. The systematic ideation approach generates a finite number of cogent solutions with high success probabilities.

The National Headquarters of **the Israel Police Force** have applied AIT. One of any police force's fundamental goals is maintaining civil order. In the event of riots, demonstrations, football field hooliganism or other forms of civil disobedience, the police are called in to maintain order.



A primary issue which the AIT project dealt with was in developing new effective technological and tactical solutions as follows:

- Expeditious resolution of civil disobedience, i.e., swiftly and in a focused, determined, manner;
- Reaching such civil disobedience resolution sans casualties;
- Creating and developing a fierce image of the police forces which serving as an element of deterrence preventing or minimizing the likelihood of civil disorder.

In an effort to determine the key success factors for the solutions to be generated, the project team, consisting of police and Inovent experts, collected data and performed an analysis of the current riot handling procedures as well as existing tactical aids and armament versus riot related challenges. The team also evaluated the pros and cons of current procedures and examined the implications regarding the application of each tactical aid (e.g. batons, tear gas, etc.).

The AIT project resulted in a series of solutions which:

- Offer technological as well as non-technological answers to present challenges
- Comply with all the pre-defined key success factors, as mentioned above
- Were considered by the involved police experts as feasible, original and effective.

Sanmina-SCI Corporation (<http://www.sanmina-sci.com>), the world's premier Electronics Contract Manufacturer (EMS), serves the fastest growing segments of the \$125 billion global EMS market. The company provides end-to-end manufacturing solutions, delivering unsurpassed quality and support to large OEMs in the following sectors: automotive, communications, computing, defense and aerospace, industrial and semiconductor, medical and multimedia sectors.



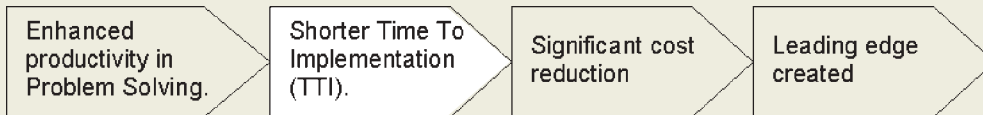
In January 2004, The Israeli branch of Sanmina-SCI began applying AIT as an integral element of its management development process. By applying AIT principles, Sanmina reported significant improvements in parameters to which the company gave great importance, including due date performance (On Time Delivery), productivity level, real-time production performance monitoring and so forth. Sanmina-SCI also employed AIT to create an improved data management system (SFDC) for tracking the production process. Prior to implementing AIT, production errors were not reported promptly, thus lengthening the response time needed to locate the cause of the defect and therefore to prevent error repetition. Once AIT principles were implemented, Sanmina-SCI Israel managed to accomplish two goals simultaneously:

- i) To decrease the time needed for identifying defects.
- ii) To increase the ability to assimilate improvements as well as to control the results.

An AIT project, similar in nature, was executed with **ECI Telecom Ltd.**, (<http://www.ecitele.com>; NASDAQ: ECIL).



ECI Telecom, one of Israel's leading hi-tech companies is recognized as a major innovator of optical networking solutions and is a prime supplier of sophisticated solutions to the Israeli Defense Forces (IDF). The company provides advanced telecommunications solutions to leading carriers and service providers worldwide. Applying AIT in ECI-Telecom yielded results that were virtually identical to the ones obtained by Sanmina-SCI.



Shorter Time To Implementation (TTI)

Companies employ AIT to synthesize technology, knowledge and skilled personnel ending up with cogent solutions. Identification of innovative solutions based on existing capabilities allows companies to employ the newly created solutions expeditiously. However, failing to shorten implementation time results in lost profit due to lost market share, shrinking margins, lost market foothold, market primacy and leadership. When implementing AIT, Product development is accelerated dramatically.

Kwik Kopy Corporation (www.kwikkopy.com) is a division of the International Center for Entrepreneurial Development (ICED), a holding company offering franchise opportunities in the computer education, health care, mail center and printing industries. ICED is considered to be the world's largest alliance of printing centers, headquartered at Northwest Forest in Cypress, Texas.



Kwik Kopy Israel, Israel's largest chain of printing services, applied AIT in order to accelerate the development of new products based on the company's existing capabilities. The company initiated a process which generated a series of new sales promotion products:

- The new items were based on existing Kwik Kopy products thus shortening production and implementation time.
- Each product could be offered as a give-away but could also be sold as a revenue-maker customized to client needs.
- Kwik Kopy was satisfied with the positive cost-benefit ratio generated by its new line of products.

UMS Software Systems (<http://www.ums.co.il>) is another fine example of a company that has executed a shorter product development cycle. UMS is Israel's largest CRM software developer with more than 1500 corporate clients in Israel and abroad. UMS provides collaborative CRM solutions for all types of industries and for every major market.

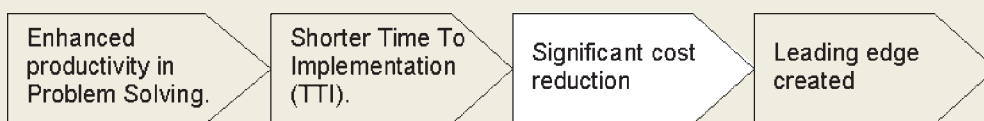


UMS provides collaborative CRM solutions for all types of industries and for every major market.

UMS adopted the policy of milestones and "due date" definition to each of the AIT project phases. The demand to comply with fixed dates compelled the development team to focus on hitting deadlines. Furthermore, the feasibility tests performed during the AIT process (rather than at the end of it), ensured process quality and, at the same time, reduced the probability of ending up with solutions both ineffective and/or not fitting process objectives. The AIT process performed with UMS resulted in a series of creative, feasible ideas for improvements in UMS's leading CRM solution - the Follow-UP CRM software.

Follow-Up CRM is a specialized product for sales and marketing management. Herein are some of the ideas yielded in the process:

- A full synchronicity between Follow-Up CRM and Office Outlook
- An interface for online acceptance of Internet surfers who enter websites of companies operating a Follow-Up CRM system. This interface enables a direct, real-time synchronicity between the company's website and its database.
- Enabling the Follow-Up CRM database to function in Office XP environments, while simultaneously integrating "Smart Tags" technology.
- Integration of EIS (Executive Information Systems) and analysis tools which also enable Internet and intranet distribution abilities.



Significant Cost Reduction

Companies use AIT to examine the effectiveness of processes and internal activities. In addition, companies also assimilate AIT principles in order to achieve enhanced performance and to reduce the amount of non-value added work (i.e., wasted efforts).

Bank Ha'poalim, (www.bankhapoalim.co.il) Israel's most influential banking group, has a powerful domestic presence and boasts offices in major financial centers throughout Europe, North America and Latin America. Bank Ha'poalim utilized AIT in its information systems division in order to dramatically reduce costs related to selected software development projects.



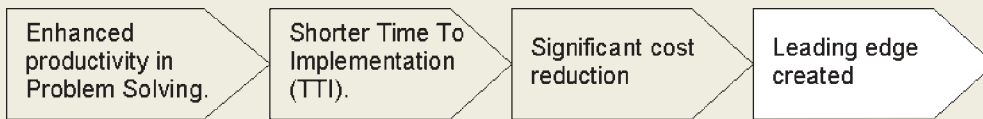
As a part of the AIT process, the participants, including project managers and business analysts, completed a cause and effect matrix, ranking each project's problems and/or flaws. The different problems were prioritized in accordance to their impact and severity.

Once the prioritization process was finalized, each of the eight participating teams conducted a full-scale improvement process. As a result, Bank Ha'poalim reported significant improvements in the selected projects.

Kwik Kopy Israel applied AIT as part of a strategic initiative to address production process effectiveness. Through AIT methodology, the company analyzed the different aspects of printing jobs in order to identify flaws which caused inadequate production performance. The company stated that applying AIT allowed it to identify the most significant undesirable phenomena as well as measure the impact of each phenomenon. The process was finalized with two major changes in production, as follows:

- i) Unification of all Kwik Kopy production centers into one central logistic center. AIT assisted Kwik Kopy in finding solutions to problematic issues such as geographic distance, on time delivery and more.
- ii) A successful shifting into a "full-kit mode" of production, despite certain common obstacles found in Kwik Kopy's business environment.

Kwik Kopy reported considerable cost reduction even exceeding early estimates.



Leading Edge Creation.

Companies include AIT projects as an investment in attaining strategic goals. AIT creates a leading edge, assists in penetrating new markets, expanding market and customer share, upgrading and performing other business activities designed to obtain quantifiable outcomes, improve business performance and bottom line results.

Datasafe Group (<http://datasafe.comint.co.il>) was, in 2003, Israel's second largest software reseller. The group is also heavily involved in providing computer solutions including hardware (PC & Peripherals) and in network installations and maintenance.



Datasafe employed AIT in order to examine its business and marketing strategy. By using AIT various flaws were exposed encouraging the company to generate a series of daring, unexpected measures. Here are some illustrations:

- The launching of a series of sensational marketing campaigns creating extensive press coverage and salutary public relations.
- The formation of a unique advertising business model which enabled Datasafe to form partnerships with major Israeli business journals.
- The initiation of a fresh pricing program which caught the market by surprise and enabled Datasafe to attract new clients based on unprecedented low prices.

The measures noted above, as well as others, considerably improved Datasafe's bottom line results. Today, Datasafe is putting up a noteworthy fight with Israel's largest software reseller in 2003; Datasafe seems to be closing in on the number one company based on the increasing number of its new corporate clients as well as newly created revenues.

By the same token, **Kwik Kopy Israel** applied AIT in order to revise its business strategy. This thorough examination led to the creation of a new direct marketing channel enabling Kwik Kopy to rapidly deliver its products to "the corporate doorstep" anywhere in Israel.

This change became possible due to an innovative production process, which was characterized by Kwik Kopy as "revolutionary". As a result of this process, the chain can dramatically reduce the production cost of a considerable number of printed items thus creating a competitive edge which Kwik Kopy's competitors find hard to match.

AIT IMPLEMENTATION STRATEGY

To apply AIT principles within the organization, companies may be well served to design improvements around an understanding of the market's demands and the organizational constraints. AIT methodology requires companies to rethink methods for resolving issues both at the strategic and operational level. The methodology also requires that companies apply a disciplined approach to confronting different challenges.

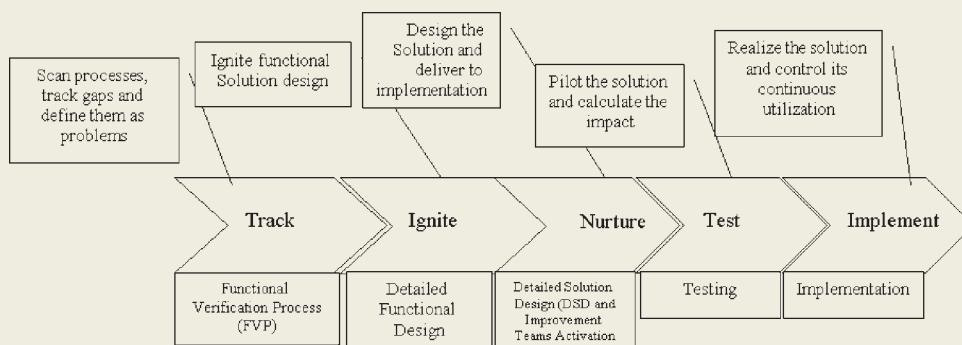
Numerous AIT projects reveal the fact that regardless to arena, offering or location, the roadmap leading to enhanced effectiveness is basically the same. This AIT action plan is a comprehensive applied study of Inventive Thinking and Solution Configuration (hereafter IT&SC). Individuals and/or teams participating in this plan will acquire all the critical knowledge, skills and methodologies regarding Inventive Thinking application. Because IT&SC cannot operate in a vacuum, the participants are also presented with both an overview of the Inventive Thinking methodology evolution and terminology, as well as greater details of the critical functions that interface with the IT&SC activities, such as:

- Marketing - Various types of Solutions, products and services, which were invented during and/or configured during IT&SC processes. These marketing elements are described in addition to various marketing aspects such as market penetration, pricing plans, customer retention and new customers acquisition.
- Risk Management - The interface between Risk Management and IT&SC processes are described in detail, including risk analysis techniques, cost-benefit calculations, prioritizing methodologies, etc.
- Solution Configuration templates are then taught in detail and practiced while following the logical path of the SCMM. All possible solutions configured to this stage are carefully scrutinized, thoroughly examining the feasibility, as well as profitability, of each proposed solution. The process is completed by decision making of the senior steering team, which must approve all solutions that are to be implemented.

We would share with the fact that our nickname to the AIT process, is TNT, for two reasons:

First, AIT projects have an enormous amazing impact on organizations, similar to the impact wave created by the explosion of TNT, and second, because of the acronym which combines the initial letters of each of the AIT phases:

Ti-N-Ti



More information about the AIT phases may be found in the "AIT-lifecycle" PDF file.

Summary

AIT is much more than simply another methodology of problem solving; furthermore, it is a way of life which enables consistent increase in the organization's inclusive performance.

Although AIT can be applied to every process at every level in an organization, which is how AIT is commonly implemented, the true potential and results of AIT stems from:

- i) Understanding the interdependencies between different factors in the organization as well as factors in the organization's surrounding;
- ii) Realizing the influence that those interdependencies have on the organization's overall performance;
- iii) Turning the application of AIT to a daily, ordinary organizational habit.

Applying these three elements would create a stable and consistent procedure with which the organization's management can quickly respond to both opportunities and threats.