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PODSEKRETARZ STANU
prof. Krzysztof Jan Kurzydłowski

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Prof. T. Luty
Konferencja Nauki KRASP
przew. - opinia
Tadeusz Luty
25.10.07

Pan Profesor Tadeusz Luty
Przewodniczący Konferencji Rektorów
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Wybrzeże Wyspiańskiego 27
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Szanowny Panie Rektorze,

Ministerstwo Nauki i Szkolnictwa Wyższego otrzymało od Amerykańsko-Polskiej Fundacji na rzecz Edukacji (*American-Polish Foundation for Education*) propozycję projektu zatytułowanego „*Operation Poland Forward*", którego ogólnym celem jest wzmocnienie polskiej gospodarki poprzez szybszy rozwój sektora nauki i techniki.

W związku z tym, że istotną rolę w realizacji projektu miałyby odgrywać polskie uczelnie, pozwalam sobie przekazać w załączeniu kopię streszczenia projektu oraz slajdów prezentujących go bardziej szczegółowo, z prośbą o wyrażenie opinii KRASP na temat tej propozycji. Będę zobowiązany za przesłanie odpowiedzi do 12 listopada br.

Z poważaniem,

2 załączniki

Operation Poland Forward
Executive Summary

This document describes a joint Poland-US program of the American-Polish Foundation for Education: Operation Poland Forward (OPF). The OPF mission is to enable Poland to take the lead in expanding economic growth and democracy in the countries of Central and Eastern Europe.

OPF will accomplish its mission by enabling Poland to deploy its full range of resources in a manner that is significantly more coherent and flexible than how the rest of the countries of the world deploy their resources. The result will be that Poland and its organizations (e.g., companies, universities, non-profits, government agencies) and US universities, companies and investors that are OPF members will acquire a level of competitive advantage that will enable them to take the lead in expanding economic growth—Poland will become the economic super-power of Europe.

The development of OPF began on March 1st, 2007 with the completion of the OPF Executive Summary completed and presented at the end of May '07. During the development phase all the necessary initial documentation for the operation will be produced (i.e., OPF Executive Overview (complete), full OPF Implementation Plan) and support and input are being secured from key, critical OPF members both in the US and in Poland. During the first two months of the implementation phase that follows the development phase, the focus will shift to full implementation and to establishing the first of the most critical OPF consortiums (e.g., Poland Forward Technology Strategy Board, American-Polish Business Consortium, American-Polish Technical Education Consortium).

OPF consists of twenty-two organizational elements and is structured after the US intelligence community program, the Socrates Project that was tasked with the mission of rebuilding America's competitiveness. The Socrates Project utilized all-source intelligence to examine, for the first time in the history of mankind, all competition worldwide to determine how to enable the US to remain an economic super-power. From this *bird's eye* view of competition Socrates determined three truths: (1) The exploitation of technology (when technology is properly defined as any application of science to accomplish a function) to excel at satisfying customers' needs is the foundation of all competitive advantage; (2) To exploit technology more effectively than the competition requires the development and execution of technology strategies that utilize position and flexibility to outmaneuver consistently the competition in the four dimensions of "technologyspace;" and (3) For a region or country to be most competitive, the organizations of the region or country (e.g., companies, universities, banks, government agencies) must develop and execute technology strategies that work in a symbiotic fashion with the full array of organizations within the country.

The symbiotic development and execution of tech strategies throughout a country enable the full range of technologies within the country, and those acquired from outside of the country, to be exploited in a coherent but highly flexible fashion in order to generate the maximum competitive advantage for the country and its organizations. The result is that each and every organization of the country is able to leverage the technologies of the entire country for its own maximum competitive advantage; this in turn generates the maximum competitive advantage for the country.

The twenty-two elements of OPF will accomplish for Poland what Socrates was intended to accomplish for the United States. The twenty-two elements of OPF will enable all the required organizations throughout Poland and selected American organizations to develop technology strategies that work in a highly symbiotic fashion. The twenty-two elements cover the full scope of required organizations within government, education, funding, technology and industry. Each

organization of the elements will benefit significantly from their membership in OPF. For example, in the case of US corporations, OPF will enable the US corporations to rapidly establish facilities (e.g., manufacturing, service, R&D) in Poland and then to operate them with a level of efficiency and effectiveness that will generate economic growth, and thereby rapidly expanding employment within Poland, that far surpasses that achieved in the US or in any other country in the world.

Poland will be uniquely able to support this level of growth and profits because it will be the only country in the world that is developing and deploying symbiotic technology strategies throughout the country. This symbiotic deployment of tech strategies will enable the American facilities very rapidly and efficiently to locate and then work with the Polish organizations and individuals that are most effective in meeting the facility's on-going requirements. This will include the full range of suppliers and services as well as universities and schools for employees and R&D facilities for technology. In turn, because of the symbiotic tech strategies, each of these Polish organizations and individuals will be supported in a highly efficient fashion by the full range of Polish organizations that make them most effective in their respective operations. The total effect will be that the American facility will be exploiting in a highly efficient and effective fashion the full range of public and private resources throughout Poland.

One of the keys to the successful execution of OPF will be establishing a high level of visibility, credibility, and transparence for the operation throughout Poland and the US. To accomplish this, a film team will be deployed in Poland and another in the US to produce a series of documentaries on the operation over its multi-year execution.

OPF will be led by the Poland Forward Technology Strategy Board which in turn will be supported by the OPF development and implementation support team. The board will be made up of representatives from Polish industry and the Polish education, finance, and technology communities as well representatives from the various organizations of the Polish government.

The OPF support team is being jointly led by F. Bednarski and M. Sekora. Bednarski's wisdom, vision and insight into the people and organizations of both Poland and the United States will enable OPF to negotiate efficiently the wide range of issues that will face the operation in both countries. Sekora was the leadership behind the Socrates Project and its mission of enabling the US to remain an economic super-power. In addition, Sekora has worked with Fortune 10 corporations as well as at the state level developing tech strategies for competitiveness and economic growth. As such Sekora and Bednarski together have the abilities required to lead aggressively, internationally as well within the individual organizations, enabling OPF to accomplish fully its mission of enabling Poland to become the economic super-power of Europe.

Because OPF is driven by the requirement to generate the maximum result for Poland in the minimum time, the operation is designed to be highly flexible in two respects. First, OPF is flexible in terms of funding and scope. The operation is able to scope easily its efforts to match the available funds. As funds become available, concrete economic development results will be achieved that will can then be utilized to justify and acquire further funding. Second, it is highly flexible in terms of organizational expansion. The operation is able to move forward and acquire results independently of the order or rate at which the Polish and American organizations join OPF. In many cases what is critical to bringing many key organizations on board the OPF is the ability to generate concrete results from those organizations that are already on board the operation.

Operation Poland Forward

Working Session
for
Ministry of Science and Higher Education

American-Polish Foundation for Education
and
Quadrigy, LLC

Summary

- Operation Poland Forward (OPF) new joint Polish, American initiative
- Mission: Increase dramatically Poland's economic strength for the benefit of both Poland and US
- Means: US intell community developed Techspace Map & Navigation Tool that enables Poland to deploy its resources with a level of coherence and flexibility, and acquire external resources with a level of precision, beyond any competitor
- Cost & time: Implemented as resources become available
  - 1st yr: $750k/area with measurable results in 9 months
  - >2nd yr: Funding derived from Polish/US participants
- Next step: Draft and coordinate full OPF Implementation Plan -- 3 months, $250,000

Objective

To provide a working knowledge of Operation Poland Forward

What it will do for Poland – *The benefits*

How it will be accomplished -- *The mechanics*

What is the next step -- *Build the plan*

Operation Poland Forward

"Śmiały, śmiały, zawsze, śmiały."

Organization of Working Session

- Summary
- Operation Poland Forward
  - Executive overview of OPF -- OPF chart
  - Implementation of OPF
  - Next step
- Background
  - Socrates -- US intelligence initiative on US competitiveness
  - Technologyspace and technology strategies
  - Symbiotic deployment of technology strategies
- Conclusion

Operation Poland Forward (OPF)
Mission Grand View

Enabling Poland to Become an Economic Powerhouse

American-Polish Foundation for Education

- Founded 1999 as non-profit to develop Poland economically
- Focused on education aspect of economic development
- Initiated OPF March 2007 to address complete foundation of Poland's economic development

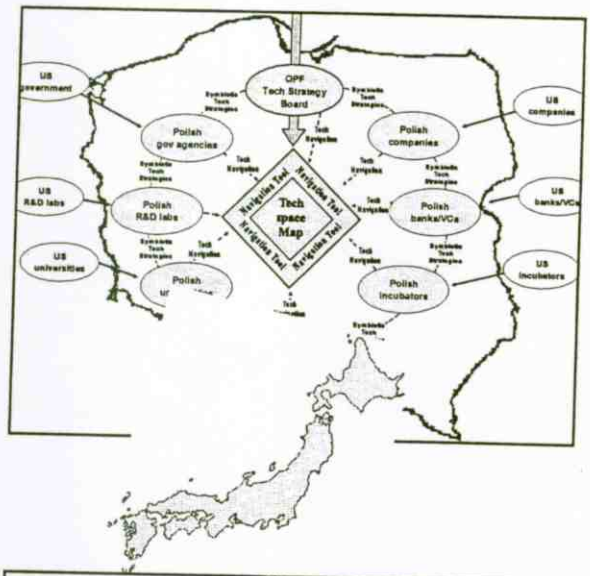
Operation Poland Forward

Mission: Enable Poland to become economic powerhouse

Means: Poland, Polish orgs and selected US orgs use Techspace Map and Navigation Tool developed by US intell community to produce and deploy:
- Poland grand econ dev tech strategy
- Orgs' individual tech strategies

that work symbiotically

Results: All Polish resources deployed in coherent, flexible but independent fashion to generate max economic competitive advantage for:
- All Poland
- Polish orgs
- Selected US orgs



Operation Poland Forward (OPF)
Mission Grand View

Enabling Poland to Become an Economic Powerhouse

Technology
Academia
Finance
Industry
Government
Operation Poland Forward
Technology Strategy Board

"By Poles for Poland"

China

Challenge: Executing highly aggressive symbiotic technology strategies
- Graduating 350,500 engineers/year (US graduating 29,391Americans/yr)
- Recruiting other countries' top engineering and science grads
- Theft of US tech more aggressive than USSR during cold war
- Aggressively pursuing symbiotic relations with other Asian countries and non-Asian countries

Achieving significant results
- $1.6 trillion war chest (4.5 trillion PLN)

But, utilizing fragmented data on techspace to develop their symbiotic technology strategies

Existing Symbiotic relationships

Existing Symbiotic relationships

Existing Symbiotic relationships

Operation Poland Forward (OPF)
Mission Grand View

Enabling Poland to Become an Economic Powerhouse

Quadrigy, LLC

Provides Techspace Map that displays:
- Opportunities and constraints in all S&T worldwide
- Worldwide competitors' strengths and weaknesses
- Poland's and organizationes' strengths and weaknesses

Provides Navigation Tool for map that enables Poland and its organizations to develop technology strategies that:
- Use Polish strengths to exploit S&T opportunities worldwide against competitors' weaknesses to generate and maintain competitive advantage required for strong economic growth
- Work symbiotically with each other to provide the maximum competitive advantage to each participant
- Acquire external resources in a highly precise and accurate fashion to further increase Poland's competitive advantage worldwide

Symbiotic relationships

United States

Impact on US:
- US orgs use full range of Polish resources in coherent, rapid and efficient fashion to increases competitiveness of US orgs & US (in turn Poland is able to exploit most aggressive US resources in same fashion)
- Provides US with economically strong partner; US can't go it alone
- Demonstrates to US leaders how US must operate to survive

Support:
- Texas
  - Academia – Univ. of Texas, Univ. of Houston,...
  - Industry – EDS, Dell, IBM, National Instruments,...
  - Govt – Governor's Office of Economic Development...
- National
  - Expanding support - Congress, White House, industry, the press,...

Texas

Future Symbiotic relationships

Slovakia

Future Symbiotic relationships

Czech

Operation Poland Forward (OPF)
Mission Grand View

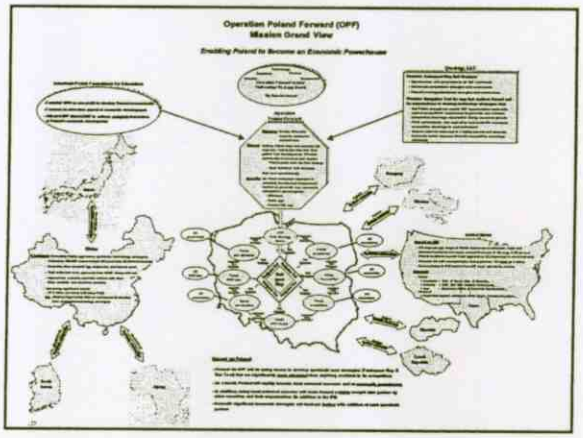
Enabling Poland to Become an Economic Powerhouse

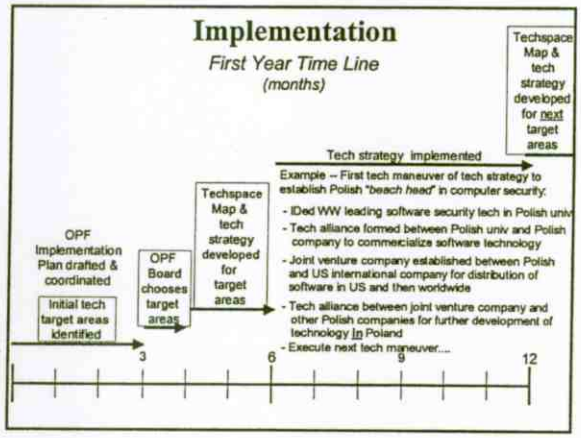
Impact on Poland:

- Poland via OPF will be using means to develop symbiotic tech strategies (Techspace Map & Nav Tool) that are significantly more advanced than anything available to its competitors
- As a result, Poland will rapidly become most coherent resource and an economic powerhouse
- In addition, being most coherent resource will make Poland a highly sought after partner by other countries and their organizations (in addition to the US)
- Poland's significant economic strengths will increase further with addition of each symbiotic partner

Implementation

- Time
  - –M easurable results achieved 9 months after OPF Implementation Plan drafted and coordinated
  - –F ull implementation of plan in 3-5 years
    - Majority of Polish resources deployed coherently
    - Estimate in-line with time Japan required to implement its symbiotic tech strategies throughout country
  - –Aft er 3-5 yrs operation will continue to significantly increase Poland's economic strength
    - Grand and individual symbiotic tech strategies will continue to enable Poland to expand into new markets
    - Other countries will continue to join Poland as symbiotic partners (e.g. Slovakia)





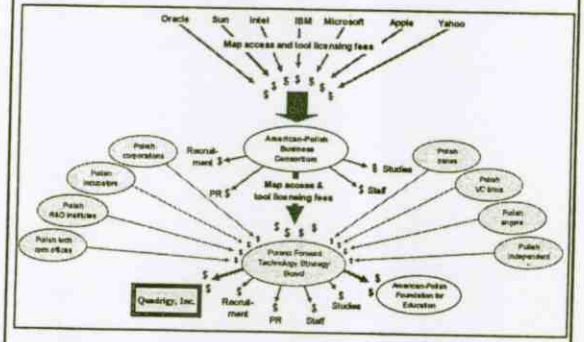
Implementation

- Implementation highly flexible
  - –F unding and scope -- Effort scoped to match funds with results achieved at each step
  - –Or ganizational expansion -- Able to move forward no matter order or rate at which Polish & US orgs (e.g., companies, universities) join operation
- Results achieved as resources become available

Implementation

- Costs
  - –1s t year:
    - Operation Poland Forward Implementation Plan -- $250k
    - Development and Execution of tech strategies
      - Budget: $750k/area (1 - 4 areas)
  - –Aft er 2nd yr: Majority of funds provided from member organizations in Poland and in the US
    - They derive significant benefit therefore they provide funding
    - Companies, universities, government agencies individually and via consortiums

OPF Funding After 2nd Year



Socrates Project

Operation Poland Forward -- Next Step

- Develop full Implementation Plan
  - Time: 3 months
  - Cost: $250,000
- Addresses Poland holistically for highly rapid implementation
  - Technology:
    - Determines tech strengths of Poland relative to world to know where to focus OPF initial efforts to achieve maximum results
  - Structure:
    - Determines organizational structure of Poland to know how to systematically implement OPF elements for max efficiency
    - Where to begin... how to proceed... how to complete it

Socrates Project

- Socrates formed in 1983 to address U.S. competitiveness
- Socrates had two-fold mission:
  - Determine source of U.S. competitiveness problem, and
  - Develop and implement solution for problem
- Built all source intell system to examine all competition worldwide -- First and only *Bird's eye* view of all competition worldwide in history of mankind
  - Determined that the most economically competitive countries were deploying symbiotic technology strategies
    - China, Japan, Korea,...
  - Developed tools to enable US to deploy symbiotic technology strategies that were more advanced than any competitor
    - Technologyspace map --4-D, real-time map of all S&T worldwide
    - Map navigation tool --Develop most advanced symbiotic tech strategies

Background

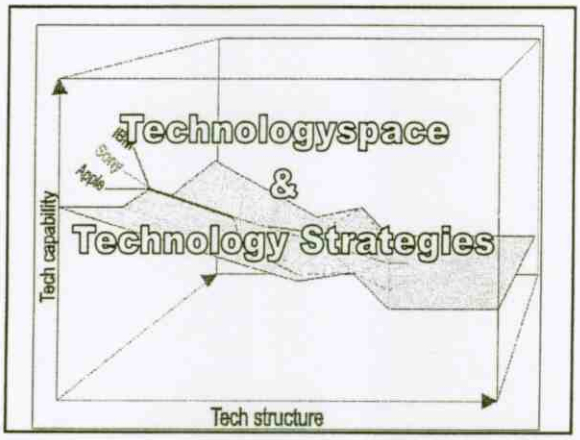
Socrates -- US intell initiative on competitiveness

Technologyspace and Technology Strategies

Symbiotic Deployment of Technology Strategies

Socrates Project and After

- Provided support to high priority Gov't programs
  - White House: Counter-terrorism, demise of USSR, SuperC,...
  - Congress: Resurrection of US IC industry, HDTV,...
  - Defense: Star Wars, stealth, advanced materials, 2010,...
- President Reagan initiated move of Socrates to White House
- Socrates "moved" into the private sector with the formation of TSP, Inc.
  - Developed tech strategies for half of Fortune 10 companies
    - GE, Boeing, Ford, ExxonMobil, and GM
  - Fortune 500 size companies
    - Kodak, Allied Signal
  - US Government programs
    - Dept of Defense: UAVs, Congress: US aerospace industry



Tech Strategies: Foundation of Competitiveness

2. Satisfying the customers' needs is accomplished with technology
   - Technology is any application of science to accomplish a function
   - Science can be very leading edge (e.g., nano realm) or it can be well established (e.g., hydraulics)
   - Function can be very critical/high visibility (e.g., Large flat panel displays) or it can be significantly more mundane (e.g., material receiving for the production line)
   - It is all technology and it is what enables an organization to satisfy the customers' needs

Organization of Section

1. The ten premise findings from Project Socrates that technology strategies within technologyspace are the foundation of all competitive advantage
2. Technologyspace -- What it looks like
3. Elements of a technology strategy -- The complete set of means for generating a competitive advantage in techspace

Tech Strategies: Foundation of Competitiveness

3. To satisfy customer needs better than the competition, organization must exploit technology more effectively than the competition
   - Must acquire the technology more effectively, and/or
   - Must utilize the technology more effectively

Tech Strategies: Foundation of Competitiveness

1. Foundation of all competitive advantage comes from satisfying customers' needs better than the competition
   - Customer needs covers the full range
     - Product performance, "quality", price, delivery, service,....
   - Customer needs defined from customer's point of view
     - Customer wants a safe flight, "squealing brakes are unsafe"
   - If not excelling at satisfying one or more customer needs, but just executing economic or marketing maneuvering, you are just *rearranging the deck chairs on the Titanic*
   - Just meeting all needs not enough, must excel at satisfying one or more customer needs
     - US companies have traditionally looked at the average of how they satisfied the customer needs
     - Asian companies have focused on excelling at satisfying a small number of customer needs

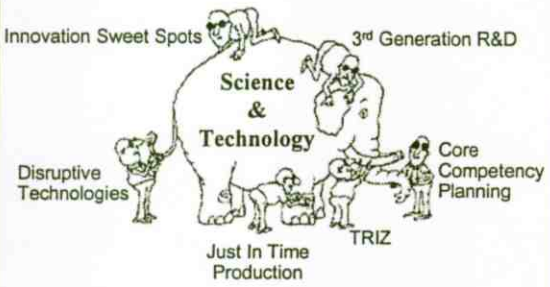
Tech Strategies: Foundation of Competitiveness

4. Effectiveness of exploitation is dictated by four attributes that are inherent in all S&T:
   - Definition of the S&T according to the laws of physics
     - Dictates which customer need the organization can satisfy
   - Capability level of the S&T
     - Dictates how well the organization can satisfy the customer need
   - Flow of the S&T
     - Dictates how the org can acquire and utilize the S&T to satisfy the need
   - How the other attributes change over Time
     - Dictates how the org can exploit the other three attributes

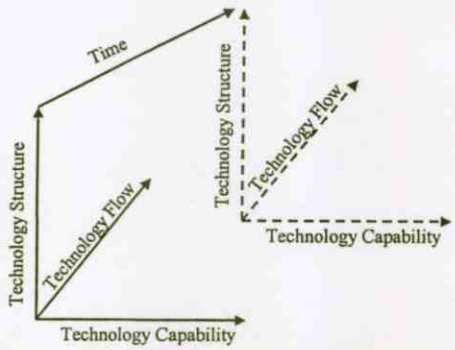
Tech Strategies: Foundation of Competitiveness

5. Four attributes for all S&T make up the four dimensional technologyspace
   - Tech Structure: The interconnection between all S&Ts at all levels as defined by the laws of physics
   - Tech Capability: The ability of all S&Ts to accomplish functions
   - Tech Flow: The flows of all S&Ts internally & externally to all organizations
   - Time: How the other three dimensions evolve forward

Traditional Planning Methods



4-D Technologyspace



Tech Strategies: Foundation of Competitiveness

7. Organization must outmaneuver the competition in one or more of the four dimensions of techspace to acquire a competitive advantage
   - Out maneuvering a competitor in a dimension equates to utilizing the attribute more effectively than the competitor
   - Strength comes from positioning and flexibility in the technologyspace
   - Just like 4-D space, movement in one dimension can be independent of movement in other dimensions
     - Can maneuver in Tech Structure independent of Tech Capability
     - Critical to being able to see competitor's tech maneuvers and determining where tech maneuvers can be executed

Tech Strategies: Foundation of Competitiveness

6. Traditional planning methods only address limited aspects of <u>some</u> of these dimensions
   - Traditional planning methods developed by consultants and professors
   - Only had view of narrow slices of competition (e.g., handful of companies, handful of exchanges)
     - Usually one aspect of one dimension
     - Just in time production – attribute: Time; aspect: Quicker is better
   - Socrates Project had view of competition worldwide (commercial, military,.....)

Tech Strategies: Foundation of Competitiveness

8. Maneuvering in technologyspace for competitive advantage same as maneuvering on military battlefield
   - S&T behaves like military resources when it comes to their acquisition and utilization for a competitive advantage
     - Must examine resource behavior across spectrum <u>not</u> for a snapshot
     - Military position defense and Technology position defense same
   - Science of military strategy can be utilized as basis for effective maneuvering in technologyspace
   - Thousands of years of experience and latest Pentagon research drawn from
     - Business strategies will brag that their "business model" is well established because it has been around for "over five years"
     - Military strategies have been examining flank attacks for thousands of years

Tech Strategies: Foundation of Competitiveness

9. But, military strategy fragmented so all reviewed and consolidated into logical structure for tech strategies
   - The Science of military strategy consists of studying the writings of the *great captains of war* that provided a wealth of knowledge but are all very fragmented
   - The readers are left with the task of extracting the universal truths (in most cases)
   - To produce a comprehensive basis for tech strategies, the wide range of works on strategy were dissected, universal truths extracted and a logical structure developed to meld all truths together
   - The combination of the logical structure and the succinct 4-D techspace enabled a closed-set of constituent elements to be accurately defined for all tech strategies

Tech Strategies: Foundation of Competitiveness

10. A technology strategy enables the organization to consistently outmaneuver the competition
    - Not attempting to pick "winners" and "losers"
    - Not attempting to predict the future
    - Utilizing position and flexibility to consistently exploit the S&T more effectively than the competitors no matter how the world evolves
      - Maneuvering the S&T of the world like *pawns on a chessboard*

Science of Military Strategy is Fragmented


Sun Tzu

All warfare is based upon deception


Napoleon

Cavalry must follow up the victory so that the beaten army cannot rally


Clausewitz

One must hit the enemy's heart with one great blow to achieve victory


Liddell Hart

All strategy takes place in the physical & mental spheres... to win, be indirect


John Boyd

Competitive advantage comes from quickness over the entire "loop"

Maneuver warfare rather than setpiece warfare is the key to victory

Recap

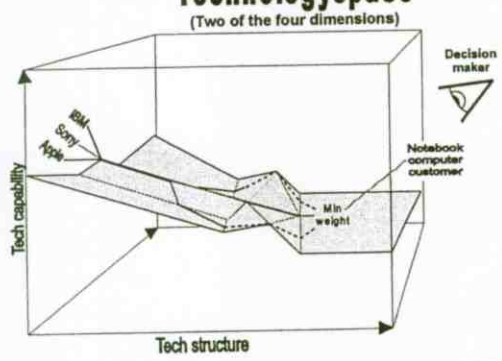
1. Foundation of all competitive advantage comes from satisfying customers' needs better than the competition
2. Satisfying customers' needs accomplished with technology
3. To satisfy customer needs better than the competition, org must exploit technology more effectively than the competition
4. Effectiveness of exploitation dictated by 4 S&T attributes
5. Four attributes for all S&T make up 4-D technologyspace
6. Traditional methods only addresses "slices" of techspace
7. Org must outmaneuver competitors in one or more of the four dimensions to acquire a competitive advantage
8. Maneuvering in techspace same as on military battlefield, science of military strategy used for technology strategies
9. Military strategy fragmented so all reviewed and consolidated into logical structure for technology strategies
10. Tech strategy enables org to adroitly outmaneuver competitors

Tech Strategies: Foundation of Competitiveness

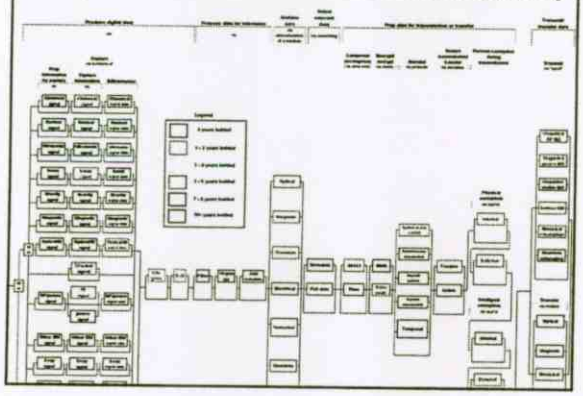
- Technology maneuvers
  - Technology Acquisition maneuvers
    - Tech Alliances
    - Tech Counter-Alliances
    - Indigenous Development
  - Technology Utilization maneuvers
    - Offensive maneuvers
    - Defensive maneuvers
    - Deterrences
- Methods for implementing tech maneuvers
- Tools for assisting implementation of tech maneuvers
- Rules for implementing tech maneuvers
- Philosophical Guidelines

Technologyspace

(Two of the four dimensions)



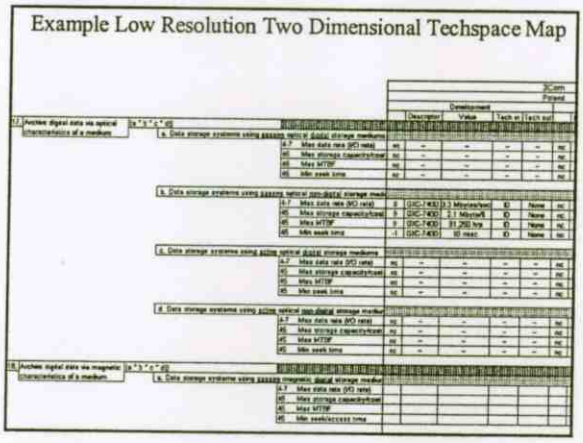
Example Low Resolution Two Dimensional Techspace Map



Technology Strategy Elements

- A closed set of elements
  - Contains complete set of means for acquiring (e.g., R&D, tech alliances) or utilizing technology (e.g., products, service, marketing) for a competitive advantage
- Precisely defined elements
  - Elements precisely defined so it is possible to determine when it is feasible for a particular tech strategy element to be executed by organization or competitor
- Strengths determined of each element
  - Factors which dictate offensive and defensive strengths of each element fully defined
- No change over time
  - The full set of elements do not change over time -- No Harvard Business Review "Trick of the month club"

Example Low Resolution Two Dimensional Techspace Map



Technology Strategy Elements

- Technology maneuvers
  - Technology Acquisition maneuvers
    - Tech Alliances
    - Tech Counter-Alliances
    - Indigenous Development
  - Technology Utilization maneuvers
    - Offensive maneuvers
    - Defensive maneuvers
    - Deterrences
- Methods for implementing tech maneuvers
- Tools for assisting implementation of tech maneuvers
- Rules for implementing tech maneuvers
- Philosophical Guidelines

Definition of Technology Strategies

Technology Strategy ≡

A concrete set of actions for outmaneuvering,
both offensively and defensively,
an organization's competitors in the acquisition and
utilization of the worldwide science and technology,
which includes the organization's and the region's
own internal S&T,
for a competitive advantage

Technology Strategy Elements

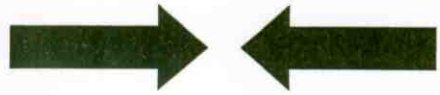
- Technology maneuvers
  - Technology Acquisition maneuvers
    - Tech Alliances
    - Tech Counter-Alliances
    - Indigenous Development
  - Technology Utilization maneuvers
    - Offensive maneuvers
    - Defensive maneuvers
    - Deterrences
- Methods for implementing tech maneuvers
- Tools for assisting implementation of tech maneuvers
- Rules for implementing tech maneuvers
- Philosophical Guidelines

Technology Utilization Maneuvers

- Offensive maneuvers
  - **Tech Frontal Attack** — *Going head to head to overwhelm*
  - **Tech Flank Attack** — *Blindsiding to knock off balance*
  - **Tech Envelopment Offensive** — *Squeezing between fronts to put into a dilemma*
  - **Tech Encirclement Offensive** — *Locking out to stymie*
  - **Tech Mobility Offensive** — *Using resources between reach to frustrate*
  - **Tech Isolation Offensive** — *Focusing to obtain a foothold from which to expand*
  - **Tech Guerilla Offensive** — *Hitting and running to win concessions*
- Defensive maneuvers
  - **Tech Position Defense** — *Standing your ground*
  - **Tech Flank Position Defense** — *Undercutting their attack*
  - **Tech Mobility Defense** — *Moving to avoid a direct attack*
  - **Tech Preemptive Strike** — *Attacking while they're too busy to defend*
  - **Tech Counter Offense** — *Regaining the initiative*
  - **Tech Strategic Withdrawal** — *Playing dead to regroup*
  - **Tech Indirect Defense** — *Leading them down the wrong path*

Technology Frontal Attack

Going head to head



Technology Utilization Maneuvers

- Offensive maneuvers
  - **Tech Frontal Attack** — *Going head to head to overwhelm*
  - **Tech Flank Attack** — *Blindsiding to knock off balance*
  - **Tech Envelopment Offensive** — *Squeezing between fronts to put into a dilemma*
  - **Tech Encirclement Offensive** — *Locking out to stymie*
  - **Tech Mobility Offensive** — *Using resources between reach to frustrate*
  - **Tech Isolation Offensive** — *Focusing to obtain a foothold from which to expand*
  - **Tech Guerilla Offensive** — *Hitting and running to win concessions*
- Defensive maneuvers
  - **Tech Position Defense** — *Standing your ground*
  - **Tech Flank Position Defense** — *Undercutting their attack*
  - **Tech Mobility Defense** — *Moving to avoid a direct attack*
  - **Tech Preemptive Strike** — *Attacking while they're too busy to defend*
  - **Tech Counter Offense** — *Regaining the initiative*
  - **Tech Strategic Withdrawal** — *Playing dead to regroup*
  - **Tech Indirect Defense** — *Leading them down the wrong path*

Technology Frontal Attack

Going head to head ➡⬅

- Tech frontal attacks primary "method" used by US businesses -- no matter what the size of the competitor
  - Target the "hot" area of the week (e.g., bio-tech, nano-tech,..)
  - "If we match their R&D dollars we will be competitive"
  - "We will show them, we will beat them in the marketplace"
- Core Competency planning, as executed by most companies equates to a Tech frontal attack
- A Tech frontal attack like a military frontal attack is a *war* of resources -- he with the most resources wins

Technology Utilization Maneuvers

- All Tech Maneuvers exist in two spheres:
  - Physical sphere
  - Mental sphere
- Physical sphere = How the maneuver manipulates S&T
  - It is where an organization executes a Tech Flank Attack by putting the next generation technology into its products
- Mental sphere = How the maneuver manipulates the mind of the competitor as of a result of how it manipulates the S&T
  - It is how the Tech Flank Attack, which uses the next gen tech, throws the competitor off balance by presenting them with a technology they are not expecting to have to address

Technology Frontal Attack

Going head to head ➡⬅

- Definitions:

– Physical Sphere: To attack a competitor by using the same technology as the competitor in the same market to attempt to excel at satisfying the same customer needs

– Mental Sphere: To attack a competitor in their perceived area of strength with "superior" resources so that they are mentally overwhelmed and thereby back down

Technology Frontal Attack

Going head to head ➡⬅

- Defining attributes:

Dimension -- **Technology Structure**:

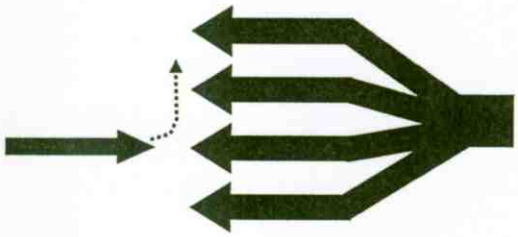
Technology Path and Customer Need focus of maneuver is same as Tech path and Customer Need focus of maneuvers of competitors

Dimension -- **Time**:

Maneuver is executed at roughly same time as competitors' maneuvers

Technology Isolation Offensive

Focusing to make reward not worth fight



Technology Frontal Attack

Going head to head ➡⬅

- Strengths:
  - Offensive: "*Increasing the Technology Capability vs competitor*"

    Capability level of the tech of the maneuver, in terms of its ability to satisfy the targeted customer needs, relative to the capability level of the tech of the competitors' maneuvers

    Unit of measure in dimension:

    Units of the technology that dictate its ability to excel at satisfying the targeted customer needs

    Direction of measure:

    Higher ability to satisfy targeted customer needs dictates a higher offensive strength maneuver
  - Defensive: "*Preventing (Technology) Flow from decreasing the gap*"

    Flow level of the technology of the maneuver on which the offensive strength of the maneuver is based

    Unit of measure in dimension:

    Number and types of transfers of the technology

    Direction of measure:

    Lower number of transfers dictates higher defensive strength

Technology Isolation Offensive

Focusing to make reward not worth fight

- Definitions:
  - Physical Sphere: To attack a competitor by using/satisfying a narrow: Technology, Customer Need, Tech Flow, or point in Time from which expansion can then be launched
  - Mental Sphere: To attack a competitor by focusing on a small area which the competitor will relinquish because of its size but which can serve as a base for further expansion

Technology Frontal Attack

Going head to head ➡⬅

- Example:
  - Starting in the late 70s, Ford and GM both aggressively pursued the utilization of aluminum in their platforms (e.g., engines, frame & suspension components)
  - Both were attempting to excel at satisfying the Customer Need of increased fuel economy
  - They were both executing the same Tech Path in order to attempt to excel at satisfying the same Customer Need
  - And like all Frontal Attacks, it was a "war of resources"
  - Ford and GM had the same level of Tech Capability in their Tech Frontal Attacks so they were equal in strength and neither gained a relative competitive advantage

Technology Isolation Offensive

Focusing to make reward not worth fight

- A Tech isolation offensive is the "small" country's or "small" organization's *equalizer*
- It enables them to compete effectively against any size competitor (e.g., Poland against China)
  - Japanese companies used Tech isolation offensives successfully against US companies to gain entry into markets
- It enables them to *punch a hole* into any market
- Can be executed in any of the four dimensions of techspace

Technology Isolation Offensive

Focusing to make reward not worth fight

- Tech isolation offensive in terms of execution consists of two parts:
  - –B eachhead ≡ The initial market area captured by the offensive by excelling at satisfying the initial set of customer needs
  - –Expans ion ≡ The further market area captured by excelling at satisfying an expanded set of customer needs
  - –Es tablishing a Beachhead without an Expansion is not an effective Tech isolation offensive

Technology Isolation Offensive

Focusing to make reward not worth fight

- To generate the required low ratio the organization:
  - – Minimizes the perceived *reward,* and
  - – Maximizes the required *fight*
- Accomplished by:
  - – Identifying the sub-set of the customer needs which are driven by technologies where the organization has a major leading in the capability
  - – Keeping the competitor from seeing the expansion portion of the maneuver

Technology Isolation Offensive

Focusing to make reward not worth fight

- Tech isolation offensive conceptually consists of two parts:
  - – Reward ≡ The market area that will be captured by the organization with the maneuver; has two aspects:
    - Perceived Reward ≡ Market area of the beachhead
    - Actual Reward ≡ Market area of the beachhead and the expansion combined
  - – Fight ≡ The effort the targeted competitor has to forth to increase it level of capability in those technologies which are required to maintain control of the market area of the perceived Reward

The true strength and beauty of
the set of technology strategy elements
is how it takes the
highly inefficient, apparently open-ended and infinitely complex process of the acquisition and utilization of S&T for a competitive advantage
and reduces it to
a highly efficient, closed set of logically arrayed, highly intuitive, "bite-sized" pieces.

Technology Isolation Offensive

Focusing to make reward not worth fight

- The effectiveness of the Tech isolation offensive is dictated by the ratio of the reward to the fight
- Objective is to have the ratio low enough that the competitor abandons the initial market area
  - – The perceived *reward* is not worth the *fight* required to keep it

"Bottom Line"

- To win consistently need three things:
  1. A 4-D *map* of techspace (at some resolution) that shows:
     - – The complete set of opportunities and constraints in techspace
     - – All competitors' strengths and weaknesses
     - – The organization's/region's strengths and weaknesses
  2. The complete set of elements that could comprise a technology strategy -- *All the ways to maneuver within the four dimensions of techspace*
  3. An open and clear mind that enables you to precisely and accurately use the map to see the techspace for what it truly is such that you can develop a tech strategy from the full set of elements that is most effective for the particular situation at hand

Operation Poland Forward

- OPF will provide all elements Poland with most advanced Techspace Map in the world
  - Competitors (China, Japan,....) only able to have and use fragmented data on techspace
  - OPF will provide holistic, 4-D, real-time map of complete worldwide technologyspace (dimension, coverage,...)
- OPF will provide Navigation Tool enabling Poles to develop tech strategies from complete set of elements
- Techspace Map with Navigation Tool will enable Poles to see clearly the tech strategies required to acquire and maintain the worldwide competitive advantage needed for strong, consistent economic growth

Definition of Symbiotic Deployment

Symbiotic ≡ A relationship between organizations &/or regions where:

–Each organization/region is able to exploit to some extent the technologies of the other orgs/ region for its competitive advantage and therefore success and,

–T he success of each org/region, which further increases its technologies increases the success of the other orgs/region by giving them more technology to exploit, such that,

–Each org/region is willing to have their technology exploited to some extent by the other orgs/region.

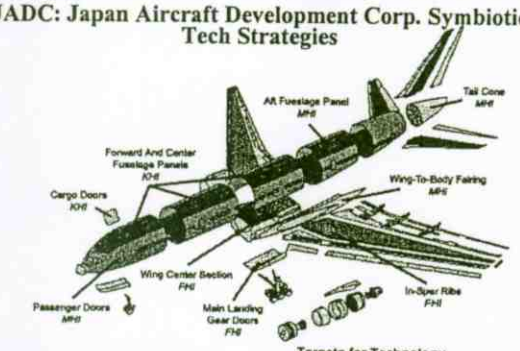
Competitors' Symbiotic Tech Strategies

- Japan used symbiotic tech strategies to transform itself after WWII from burned out hulk to dominating numerous industries in 25 years
  - MITI developed Japan grand economic development symbiotic technology strategy
  - Japanese org's developed individual tech strategies
- China using aggressive symbiotic tech strategies to rapidly built itself into economic super-power
  - Amassed $1.6 trillion war chest in short time as a result
  - But, tech strategies have only just begun to provide China with its full eventual strength
  - A proper tech strategy outmaneuvers the competition in the techspace long before the marketplace engagement

Organization of Section

- Definition of symbiotic deployment of technology strategies
- Examples of competitors' deployment of symbiotic technology strategies
- Poland's deployment of symbiotic tech strategies via Operation Poland Forward
  - Key to symbiotic tech strategies
  - Organizational structure of OPF
  - Example deployment of symbiotic tech strategy

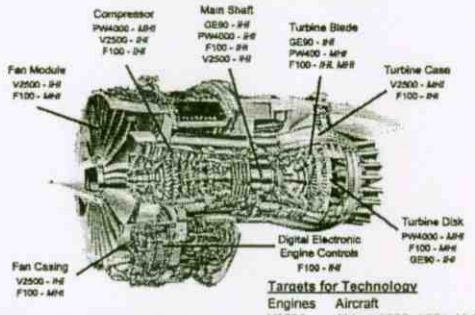
JADC: Japan Aircraft Development Corp. Symbiotic Tech Strategies



Executors of Symbiotic Tech Strategies
MHI: Mitsubishi Heavy Industries
KHI: Kawasaki Heavy Industries
FHI: Fuji Heavy Industries

Targets for Technology
Boeing - 737, 747, 757, 767
Lockheed - P-3C
General Dynamics - F15J, F16 (FS-X)
McDonnell Douglas - MD11, MD80

JAEC: Japan Aero Engine Corp Symbiotic Tech Strategies



Executors of Symbiotic Tech Strategies
MHI: Mitsubishi Heavy Industries
IHI: Ishikawajima - Harima Heavy Industries

Targets for Technology

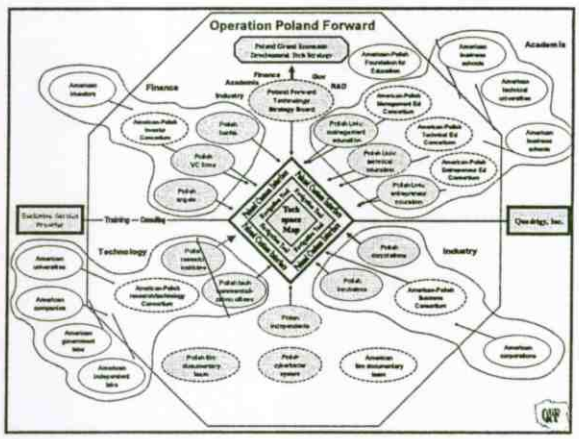
Engines	Aircraft
V2500	Airbus A300, A321; McD MD80
F100	McD F15J; General D F18
PW4000	Airbus A300, A310-300;
GE90	Boeing 777

Utilization of Techspace Map

- Techspace Map displays:
  - Opportunities and constraints in all S&T worldwide
    - Customer needs to be satisfied, tech bottleneck,...
  - Worldwide competitor's strengths and weaknesses
  - Poland's and its orgs strengths and weaknesses
    - Companies, universities, gov facilities,...
  - And, interconnection between all three
- Can then identify:
  - Which Polish capabilities (Tech capability dimension) when interconnected will produce which products or services that will excel at satisfying which customer needs (Tech structure) relative to the competitors (Tech capability) for a true competitive advantage

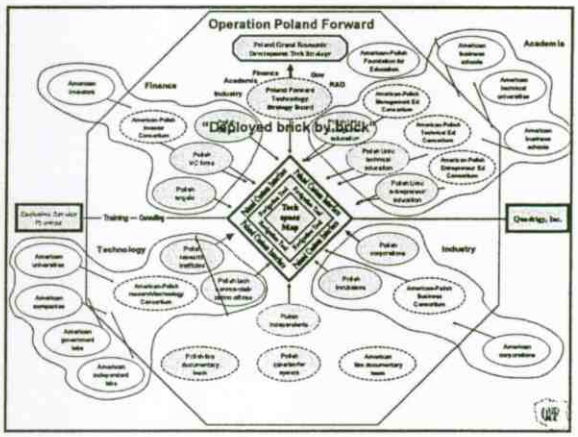
Key to Symbiotic Deployment

- Key to symbiotic deployment of tech strategies in an open society is ability to see benefits of deployment in concrete terms
  - Country and each organization sees how their self interests are best served by the deployment
- OPF Techspace Map and Navigation Tool enables Poland, Polish and selected US orgs to see benefits in concrete terms to develop respective symbiotic tech strategies, plus.....
- Enables each to develop tech strategies that are significantly more effective then any of their competitors' tech strategies



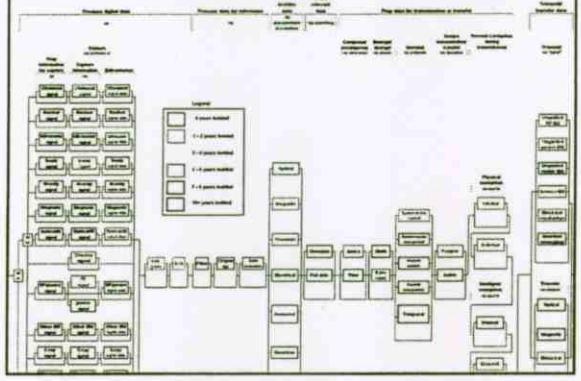
Symbiotic Tech Strategies in OPF

- OPF Tech Strategy Board develops Poland Grand Economic Development Technology Strategy
  - Comprised of Polish industry, academia, technology, finance and government
  - Utilizes Techspace Map and Navigation Tool to strategy
- Polish orgs develop their own individual tech strategies
  - Use Poland Grand Economic Development Tech Strategy and Techspace Map and Nav Tool to develop strategies
- Selected US orgs develop their own tech strategies
  - –Uni versities, companies, finance, and government
  - –Us e Poland Grand Economic Development Tech Strategy and Techspace Map and Nav Tool as allowed by Board
  - Symbiotically work with Poland and its organizations



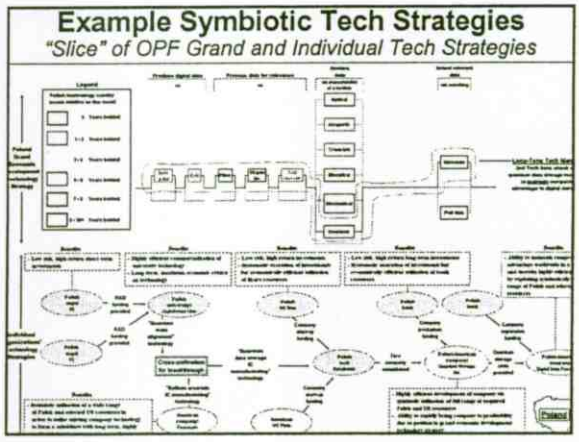
Example Symbiotic Tech Strategies

Low Resolution Two Dimensional Techspace Map



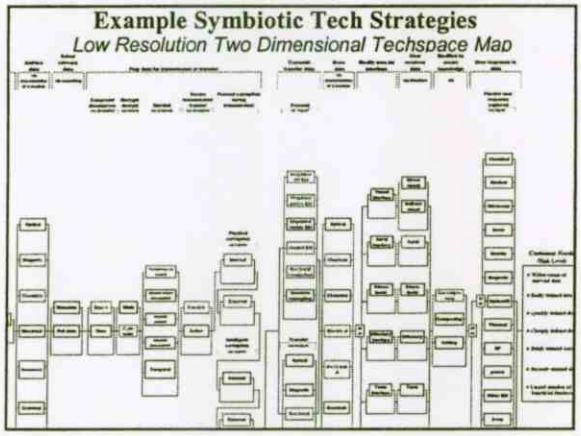
Example Symbiotic Tech Strategies

"Slice" of OPF Grand and Individual Tech Strategies



Example Symbiotic Tech Strategies

Low Resolution Two Dimensional Techspace Map

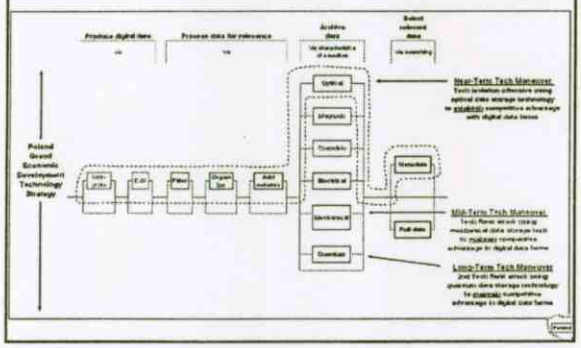


In Summary for Poland

- Develop and deploy science and technology faster, with more flexibility, accuracy, and precision then competitors
- See positive economic successes within months of initial deployment
- Create excitement, motivation, for all of Poland
- Innovation as a force multiplier for all activity
- Build Polish owned technology based companies
- Quickly reverse trends of losing Poland's best and brightest

Example Symbiotic Tech Strategies

"Slice" of OPF Grand Economic Development Tech Strategy



Poland builds Poland with Polish people and Polish technology