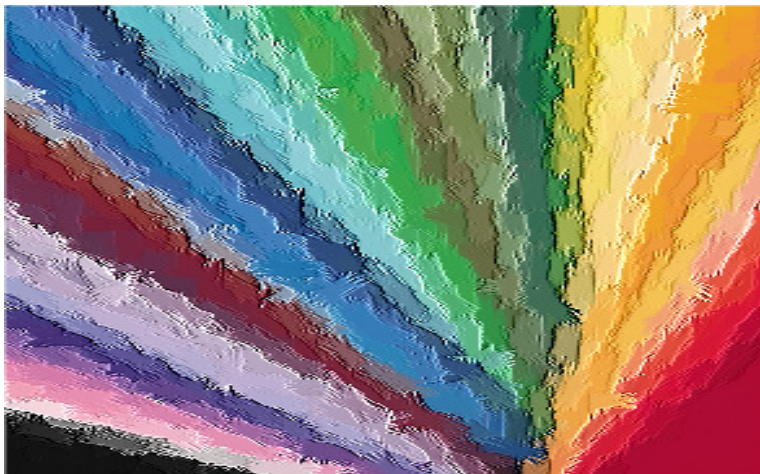


Full Spectrum Innovation

Learn how to achieve permanent success by acquiring the right innovation mindset, skillsets and toolsets.



A handbook for
**Managing change through
innovative thinking.**

Dennis J. Heindl



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How to get the most from this handbook

In addition to providing a practical approach to mastering change, this handbook offers:

Thinklets: Hyperlinks to tools that provide additional knowledge to improve your understanding and thinking skills.

Applications: Provide a systematic approach to create permanent innovation. Get a Personal Innovation software application demo at nthdegreesoft.com/dmpi.doc.

Introduction

Handbook premise:

As workplace change accelerates, innovation has become a survival issue for many organizations.

Driven by global economic forces, employees need tools that can help them to productively cope with the new challenges they face and thrive in a knowledge-based era of work.

To be successful in this era requires perpetual innovation by organizations and innovative thinking as a core competency by knowledge workers. This short, easy-to-read handbook provides a concise and practical summary on how to do both.

Overview

This handbook focuses on three primary areas to help employees become better at managing change and supporting their organization's need for greater innovation:

Part 1: Change-adept Mindset

Innovation starts with a change-adept mindset. This enables employees to be proactive and benefit from the opportunities that constant change creates.

Part 2: Innovative thinking Skillsets

Mastering change comes from acquiring innovative thinking skillsets. Innovative thinking is very difficult, much more difficult than problem solving. Learn what skills you and your employees need.

Part 3: Facilitated Thinking Toolsets

It's not enough to just talk about becoming more innovative. Companies must put in place the tools and practices that systemize innovation ... much like the tools that systemized quality.

The following three Full Spectrum Innovation applications describe a facilitated thinking technology approach to innovation. It surrounds employees with the cognitive methods and tools needed to make innovation a routine part of everyone's job.

1. **Personal Innovation:** Sitting at the heart of innovation is the individual. This application empowers workers to tap into their personal creative talents to make cost reduction and incremental improvements in their own jobs.
2. **Collaborative Team Innovation:** Self-organizing teams use this application to better meet customer needs by finding existing product and service extension innovations.
3. **Organizational Innovation:** This application guides formal innovation project teams Use it to develop disruptive and next generation products and services, business process redesign, and sustainable futures innovations.

Favorite quotes that support the need for this handbook

The biggest problem facing the world today is not climate change but inadequate thinking. Ed deBono book, Think before it's too late.

The future belongs to companies whose employees apply innovative thinking to benefit from the opportunities of constant change. Jack Welch, Former GE CEO.

When I was growing up, my parents said to me, Tom, finish your dinner -- people in China are starving. Today, I am telling my own daughters, Girls, finish your homework -- people in China and India are starving for your jobs. Tom Friedman book, The World is Flat.

Part 1: Change-adept Mindset

The Evolution of Change

The first step for managing change is understanding it.

Recently, the world entered a true revolution in how people work. It's only the third time such a dramatic workplace change occurred.

1. **Agricultural workforce era:** Five thousand years ago the plow was invented. It changed the world, but it took 1000 years to circle the globe and benefit all humankind.
2. **Industrial workforce era:** Work was transformed from using hand tools and physical speed to using machine tools and motorized speed. Change evolved slowly enough for workers to successfully deal with it as it occurred.
3. **Knowledge workforce era begins:** Once again the world of work is being transformed. Machine power, manual tools and motorized speed are being replaced by brain power, cognitive tools and electronic speed.

People to drive hyper-change

Information technology innovations drove significant changes over the last 25 years. BUT ... this technology really just laid the foundation (*infrastructure*) for real change (hyper-change) to occur.

Our earth is now home to 6.8 billion better educated people who can access unlimited information and collaborate with each to produce new ideas and innovations ... driving even faster CHANGE!

Futurist Ray Kurzweil believes the 21st century will produce changes 1000 times greater than the 20th century.

Challenges of Workplace Change

**The race today goes to ...
change-adept innovative thinkers.**

Even if Ray Kurzweil is only partly right, to successfully compete today requires knowledge workers and organizations to learn to manage the following challenges of workplace change.

Growing job complexity

Work is quickly getting more complex. Jobs now require more information, knowledge and skills to complete.

Auto-pilot thinking dominates work

Many work tasks today follow routine “auto-pilot” thinking that leads to highly efficient performance. But workers are noticing that using the same thinking that worked and was successful yesterday, may not work today.

Knowledge and skills obsolescence

Not only is more knowledge and skills needed to perform work, but those skills are becoming obsolete faster. Accelerating change causes the lifespan of knowledge to grow shorter and shorter.

Training and learning needed more than ever

The more work practices change, the more training is needed. But change is starting to occur faster than people have time for retraining.

Learning and forgetting: The limitation of human memory

As workers struggle to acquire more skills and information, one thing hasn't changed much. It's that we remember only 2-4% of what was taught. *So when the time comes to apply learning, much might have been forgotten.* adm.uwaterloo.ca/infocs/study/curve.html.

It's Time ... to think better

- It's Time ... for knowledge workers to “think” their way through change rather than “learn” their way through change.
- It's Time ... to shift from lucky innovation to predictable innovation.
- It's Time ... workers start apply innovative thinking to successfully manage change.
- It's Time ... To develop a change-adept thinking workforce.

The Knowledge Worker Challenge

- To apply more information.
- Upon a more complex job.
- With knowledge that maybe obsolete.
- Using a memory that forgets much of what it was taught.

And another little issue

To successful deal with these challenges there is another SMALL issue we need to address ...We Hate Change! We may say we like change ... but most of us don't!

We Hate Change!

Personal change: For many of us, change is a chilling thought. Change represents breaking habits and lifestyle routines, losing predictability and control, as well as the potential loss of work skills and knowledge.

Many workers, including life-long career professionals, are beginning to lose confidence in their ability to stay competitive and handle workplace changes.

Organizational change: Change for most organizations is even more difficult. Organizations by their nature are not predisposed to change. In fact, a primary purpose of organizational structures is to produce predictable behaviors and results.

Change is starting to happen so fast that organizations are witnessing long-standing practices and ways of doing business crumble in the wake of worldwide change.

Societal change: Technology is producing change faster than society's ability to understand it and guide its development. Our earth may be at risk because we lack the foresight to see the impacts of change.

Yet ... more than 2500 years ago, the Greek philosopher Heraclitus said:

“Change is the only constant!”

So why after 25 centuries aren't we better prepared to handle change? The answer is simple.

Until now change had always been *manageably slow*. We never had a need to learn how to manage change ... *But we do now!*

SO ... HOW DO WE MANAGE CHANGE?

Innovative Thinking Manages Change

“Innovative thinking is the ability to see change as an opportunity - not a threat.” Steve Jobs, CEO Apple.

The Yin/Yang of Change

Change and Innovation are bound together and intertwined in much the same way the proverbial *yin/yang* give rise to each other.



For every change there comes an innovation opportunity, and with every innovation comes change. So as change accelerates, so does the need for innovation.

Associated with change is an irrefutable law of nature: **all species must adapt to constant change.** As Darwin put it: “It is not the strongest nor the most intelligent of the species that survive; it is the one most adaptable to change.”

Adapting and managing change with innovative thinking

For the past century, problem solving and scientific thinking have dominated how we were taught and how we performed our jobs. As important as they remain, the time has come to more fully develop our innovative thinking skills. But ... what's the difference between problem solving and innovative thinking?

- Problem solving is about reacting to change. It analyzes existing data with the purpose of restoring the problem to either a past condition or accepting the changed condition.
- Innovative thinking is about being proactive to change. It studies data that does not yet exist yet. Its purpose is to determine what actions are needed today to prepare for an unpredictable future.

Part 2: Innovative Thinking Skillsets

Acquiring an innovation mindset is a necessary step one. Once you have it, the next step is for you to develop the following supporting skillsets.

Here is a brief skills comparison of problem solving vs. innovative thinking skillsets: Note: you need BOTH skillsets!

20 th century Problem Solving skills	21 st century Innovative thinking skills
Find answers.	Ask questions.
Gather data from reliable information sources.	Think contextually to filter data from many unreliable sources.
Analyze the past and already existing data.	Anticipate the future and not yet existing data.
Break problems into their parts and work to resolve them separately.	Examine relationships of problem parts and work to resolve the whole.
Use creative genius to develop individual best ideas/solutions.	Use collaboration to develop team ideas/solutions
Use debate and argue “either/or” and win/lose alternatives.	Use dialogue to find “and/both” and win/win alternatives.
Identify actions to return problem to a past known condition.	Identify actions to prepare for an anticipated future condition.
Emphasize rational, logical, scientific and creative thinking.	Emphasize systems, futures, critical and co-creative thinking.

Questioning

The key to thinking is never stop asking questions. Einstein

Smart people don't have all the right answers, but they tend to ask the right questions. Asking the right questions gives your mind the best chance to find the right answers, ideas, and innovations. If you don't ask questions, you greatly diminish your thinking capabilities.

Our lost ability to ask questions

Regrettably, many of us have lost our ability to ask questions. Most of us were really good at asking questions when we were children. By the time we reached high school, many of us became fearful of asking questions for reasons that include:

- Asking a question might appear to be an admission of ignorance and indicate a lack of understanding.
- Asking a question might embarrass us if it has the appearance being a “stupid” question.
- Asking a question might open us up to ridicule for not paying attention or remembering.

Re-acquiring a questioning attitude

If you take nothing else away from this handbook, give yourself a questioning attitude, and simply *start asking questions*.

If you are not a questioner, consider this Chinese proverb.

- “He who asks a question may appear a fool for a minute, but he who does not ask a question remains a fool for life.”

Observation & Insights Thinking

The ability to discern the true or hidden nature of things is the catalyst for innovation.

Many people believe that creative ideas are the source of innovation. While ideas are obviously essential, the real source of innovation comes from the process of making *observation* and developing *insights*.

For example, the idea for Sony's Walkman started with observing customers walking around with boom boxes on their shoulders. That observation led to the insight to develop a smaller portable device. And, that insight led to the creative idea of the Walkman.

In essence, Plato's famous quote, "Necessity is the mother of invention", is about observation and insight.

How do I do acquire the skills of observation and insight

You begin by looking at things from different perspectives. When you apply different viewpoints, you grasp the full scope of the situation or opportunity. Get started by looking for insights from:

- **Observing external customers:** Understanding your customers by "Walking in their shoes" is where you are likely to find breakthrough insights.
- **Observing internal customers:** Make no mistake; your co-workers are also your customers! Ask co-workers if you can help them for a short time. Working side by side with people can give you a completely different understanding, as well as insights into their needs.

Eyes-of-the-beholder Thinklet: Use this simple, yet powerful thinklet, to improve your observation and insights abilities:
nthdegreesoft.com/eye.html.

Critical Thinking

The skill to “Think about your own thinking” may be the most important of all thinking skills.

Most of us don't pay much attention to our thinking patterns. Instead of making a deliberate effort to direct the mental traffic in our heads, we pretty much leave it to chance and autopilot thinking.

Critical thinking, on the other hand, is about stopping at any moment and taking a reading of your present reality. This gives your mind the mental input and opportunity to engage constructively and thoughtfully as a current event develops.

Why critical thinking is important.

The quality of your work and life is directly related to the quality of your thinking. Unfortunately, much thinking can be distorted, uninformed, inaccurate, and biased.

Critical thinking, sometimes called Meta Thinking, gives you the ability to think about your own thinking and helps you to:

- 1. Overcome thinking biases:** Becoming aware of your thoughts helps you respond consciously rather than emotionally. For example, if something triggers an angry response, critical thinking steps you back and lets you observe it for a few moments. This immediately gives you a different level of awareness and frees you to take conscious action rather than give an emotional response.
- 2. Acquire valid information to think upon:** In general, there is a direct correlation between effective thinking and the data you have acquired to think about. Critical thinking is the filter that gives your mind valid data to think on.

***Note:** Critical thinking is NOT being critical of the way other people think.*

How can I start to become a critical thinker

If you can embed the following questions into your normal thinking pattern, you will take a giant step toward improving your thinking effectiveness in any given situation.

Note: These questions are the same whether you are a 12 year old child having a family problem or a 60 year old CEO having a corporate problem.

Primary Critical Thinking Questions
1. Why is this situation (problem, opportunity) important for me to think about?
2. How does my viewpoint differ from the viewpoints of others?
3. Do I have all the facts? If not, what questions do I need to ask to get them?
4. Do I have any biases about this situation that would distort my thinking?
5. What is my expected outcome or goal regarding this problem or situation? How does it differ from other people's goals?
6. How might my actions affect myself and others?

Critical Thinking Thinklet: To help you assess how your biases influence your thinking, go to nthdegreesoft.com/crt.html.

Co-Creative Thinking

Together ... We are creative geniuses!

Co-creation starts with each one of us, and while a creative genius like Albert Einstein is not found every day, we do find “ordinary” people constantly doing creative things. So the first step in co-creation is to boost your own creativity. Two things will help:

1. Creativity starts with *intention*. Creative ideas can only occur if you desire them and put forth the effort to produce them. You will not develop ideas if you don't believe you are creative.
2. Creativity can be triggered by asking questions like:

Creativity Trigger Questions

- If I had unlimited time and money, what ideas would I come up with?
- What ideas would I get by pretending to be someone else?
- What if I made the problem or situation 50 times smaller or larger?
- What ideas would I get by eliminating part of the problem? What can be substituted?

Co-creative Brainstorming

Good brainstorming sessions minimize judgmental thinking that kills creativity before ideas have been fully articulated. The goal is to generate lots of ideas. The more ideas you have to choose from, the more your chances of finding really good and even breakthrough ideas.

Association Thinklet: Here is a common tool to stimulate creative thinking and ideas nthdegreesoft.com/asa.html

Systems Thinking

In its simplest sense, systems thinking provides the most accurate way to describe reality.

Your organization or company, like the human body, is a system. To make and keep the organization healthy, you must consider the whole, not just the parts. Ultimately, all your business processes combined make up the overall *system* that is called a company.

In a typical organization, very few people take a systems approach to understanding the organization. Systems thinking is important because it offers an understanding of the way things really work in your organization, rather than how they appear to work in terms of formal structures.

What is systems thinking

Peter Senge, a leading researcher in the field of systems thinking, defines systems thinking as a way of understanding and working with complexity. Systems thinking emphasizes understanding the relationships among a system's parts, rather than analysis of the parts themselves.

Basically, systems thinking helps you view situations from a broad perspective that includes seeing overall structures, patterns, and cycles.

Benefits of systems thinking

- When you understand the complexity of a situation, you are better able to think and act in ways that produce desired results without causing harmful side-effects.
- Systems thinking helps you avoid creating a solution in one area of your business that causes a problem in another. This is NOT innovation, it's just bad business.

How can I become a systems thinker

Systems thinking is a personal characteristic of many top executives. And while it is a formal discipline, anyone can become a reasonably good systems thinker, simply by asking “systems” questions. For example, asking the following basic questions leads your mind down a systems thinking path.

Basic Systems Thinking Questions

1. Is this problem/situation part of a larger problem?
2. What small problems create this one or make it worse?
3. Can the whole problem or situation be solved, or just a part?
4. Are there related problems that should be addressed at the same time?
5. What system surrounds this problem?
6. Might resolving this problem hurt the system?
7. What are the system boundaries (inputs and outputs) of the problem?
8. How might solving this problem create other problems?

Systems Thinklet: Use this System Hierarchy template to help: nthdegreesoft.com/syh.html.

Futures Thinking

The future is arriving faster ... and with less certainty.

In general, it is better to anticipate and plan for potential problems and opportunities rather than simply waiting and reacting to them. In the long run, the companies (and individuals) that succeed are the ones that best analyze trends and prepare for change.

What is futures thinking

Since the future has not yet happened, futures thinking is about developing alternatives and deciding what actions are needed today to get to a desired future.

Three ways to think about the future

- 1. Possible Futures:** Represents all the alternative futures that lay within the realm of probability, whether likely or unlikely, conventional or unconventional.
- 2. Probable Future:** Represents the one future that is most likely to occur. This view of the future is usually the result of trend extrapolation and describes what things would be like if present conditions remain fairly constant.
- 3. Preferable Future:** Represents the most positive or desired future. This outcome is derived by looking at the future from an idealistic perspective. This type of thinking produces the best breakthrough and radical innovations.

How do I start to become a futures thinker

The future will happen no matter what you do, but if you want it to be a *good* future, you need to work at it. Ask these questions to get yourself and your organization started for getting better control over your future.

Key Futures Thinking Questions

1. What are likely to be your biggest problems in the future?
2. What opportunities might exist in the future that does not exist today?
3. What might replace **you** in the future?
4. Over the past couple of years, what changes have you noticed in your customers?
5. What are your customers' future needs?
6. Are goals in the future likely to be the same as today's goals?
7. What is the most likely or probable thing to happen in the future?
8. What ideally or preferably should the future become?
9. If you had absolute power and control, what would the future look like?

Futures Thinklet: Use this Delphi Technique to help you develop a best guess of the future: nthdegreesoft.com/det.html.

“And/Both” Decision Making

Why is innovation success so elusive?

A recent report from the Boston Consulting Group showed that many CEOs were unhappy with the decision making associated with innovation projects. So what’s the problem? It’s that conventional decision making leads to choosing the wrong projects to work on.

Conventional vs. Integrative “And/Both” decision making

Conventional decision making tends to minimize complexity and narrow alternatives down to **either/or** choices. Decision making focuses on certainty, predictability and measurability. It emphasizes collecting quantifiable data and using formulas to make decisions.

Integrative decision making, on the other hand, embraces complexity and uncertainty. Decision making now focuses on **and/both** choices and finding the right mix of innovations that deserve investment. Integrative decision makers use a roadmap approach for dealing with constantly changing customer needs and technologies.

Basic Integrative Decision Making Questions

1. What future goals or criteria must any decision align with?
2. Is the decision for a short-term remedy or long-term fix?
3. Have enough alternatives been developed to enable you to make a good decision?
4. Can a better decision be made by combining parts of alternatives?
5. Are there any possible undesirable future consequences or side-effects from making this decision?
6. What decision does my intuition tell me to make? Why?

Decision Thinklet: If you don’t currently use intuition, try this Intuitive Coin Flip technique to get you started. Go to nthdegreesoft.com/icf.html.

Innovation Process

While most of us were taught a problem solving and a scientific process, none of us were taught an innovation process. The reason ... it didn't exist until now. And, for lack of anything else, people have been applying Alex Osborn's six-step Creative Problem Solving (CPS) process that was developed in the 1950s.

But remember, *innovation is not about solving problems but about embracing change*. Using a problem solving process for innovation is like using the wrong hammer for the manual job you are doing.

Proposed Basic Innovation Process	Alex Osborn's Creative Problem Solving Process
1. Define innovation goals and objectives.	1. Define problem goals and objectives.
2. Predict future data that does not yet exist.	2. Understand existing problem data.
3. Analyze the whole and the interaction of the parts.	3. Analyze problem causes.
4. Observe trends to find innovation opportunities.	
5. Generate creative ideas and innovation scenarios.	4. Generate creative ideas and alternative problem solutions.
6. Determine if scenarios have innovation potential.	
7. Build a portfolio of potential innovations.	
8. Develop a roadmap to guide what innovation to implement.	5. Decide on the best solution to implement.
9. Design and test prototype innovation.	
10. Implement innovation.	6. Implement solution.
11. Obtain feedback for continuous improvements.	

Part 3: Facilitated Thinking Toolsets

Ten years ago, business visionary Peter Drucker said:

“One of the biggest management challenges of the 21st century will be to increase knowledge worker ‘innovative’ thinking productivity fifty-fold, the same as manual worker labor productivity increased in the 20th century. So far it has been abysmally low.”

Well, it’s time

It’s time to improve knowledge worker *thinking* productivity.

It’s time for more and better cognitive tools.

It’s time to overcome the limitations of human memory.

It’s time for Facilitated Thinking Technology.

The concept and vision of Facilitated Thinking Technology is simply to *help people think better*. It is like having a skilled consultant, teacher or trusted friend working directly with you to enhance your thinking capabilities. See Appendix 1.

A new type of software application

Putting theory of facilitated thinking into practice creates a new type of software application called Facilitated Thinking Environments (FTEs). FTEs are collaborative environments designed to improve performance in a systematic way for the betterment of workers, organizations, and customers.

FTE’s function in much the same way that the invention of the assembly line improved manual-worker labor productivity. They deliver within a precise thought process the right questions to ask, the correct tools to use, and the proper thinking methods to enhance personal or team thinking capabilities.

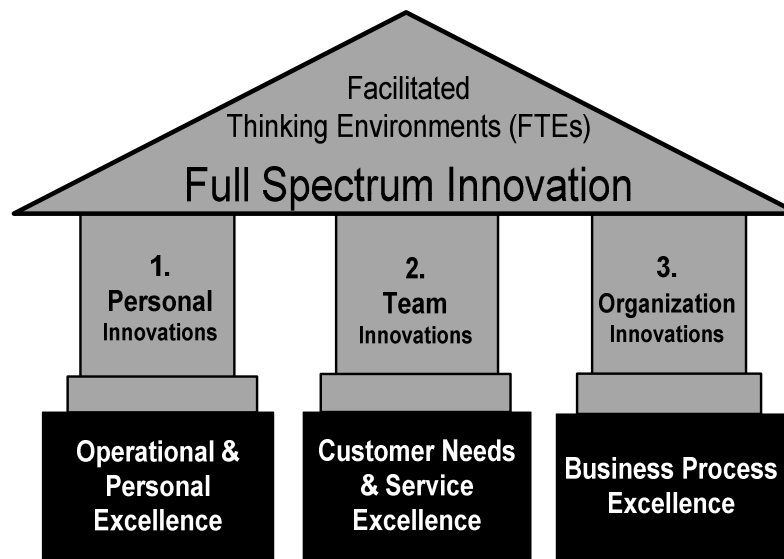
Full Spectrum Innovation

**It's time to systemize *innovation* ...
just as the fields of *efficiency* and *quality* have been systemized.**

While serendipitous acts of creativity and eureka moments can still drive innovation ... it's time to deliberately foster innovation with a systematic approach that deploys the right mindset, skillsets, and toolsets.

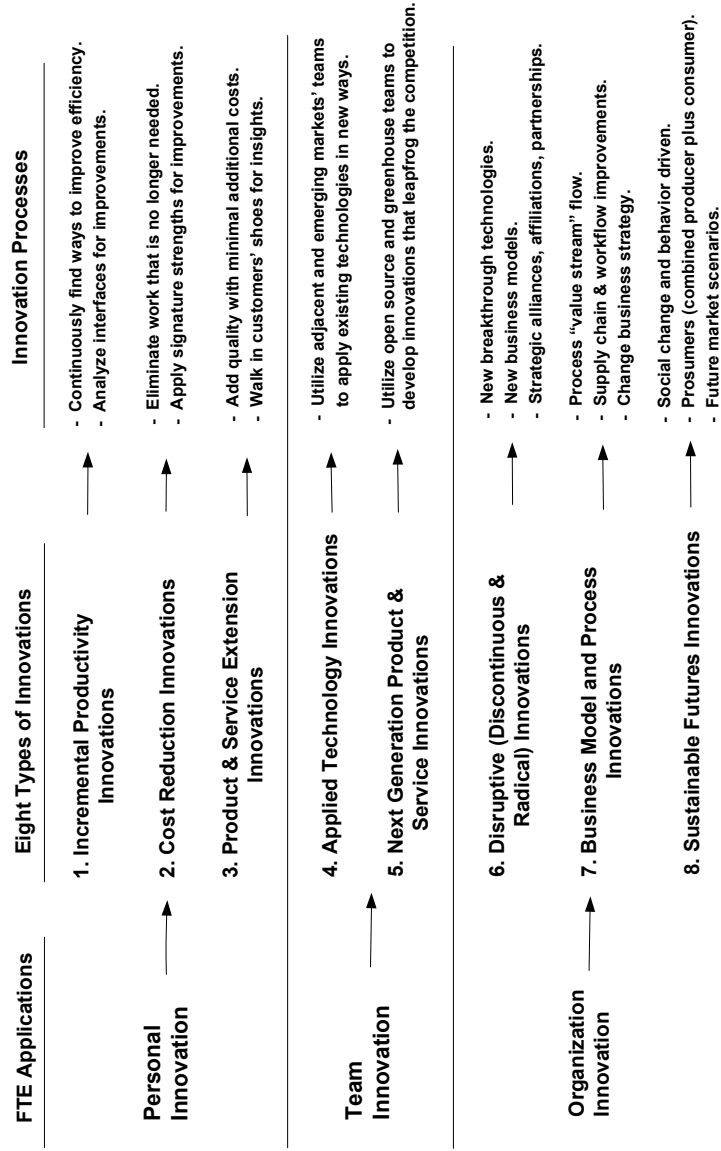
It's time for Full Spectrum Innovation - FTEs

The following schematic depicts a Facilitated Thinking Environment (FTE) comprised of the three applications. These applications are designed to create all eight different types of innovations outlined on the next page.



For a detailed description see our white paper; *Innovation Infrastructure: A systems approach to innovation*. Go to www.nthdegreesoft.com/wpinnno.html

Full Spectrum Innovation



Personal Innovation - FTE

**Turn yourself from an ordinary employee ...
into an innovator employee.**

The idea that everyone in an organization can be an innovator is a radical departure from how things used to be. Now, whether you like it or not, innovation is coming to your organization, and you might as well get ahead of the curve instead of playing catch-up.

Or, as Procter and Gamble's CEO A.G. Lafley and Ram Charan warn in their book, *The Game Changer*, "If Knowledge workers don't make a commitment to support and practice innovation, they will be left behind by a world becoming much more innovative."

Personal Innovation software application – See demo below

Today we know that front-line knowledge workers with their unique and invaluable perspectives can, with proper guidance, create brilliant innovations. The Personal Innovation software application guides you to find operational innovations that you can implement yourself in the following areas:

Operational excellence

Operational excellence is a never-ending effort for improvement in your job. It is based on the Kaizen principle that states everything can be improved. It uses a mindset that looks at your present job as being done in the "worst possible way." Note: Toyota employees use this approach to generate over one million ideas every year!

- *Incremental productivity innovations*: Continually improve efficiency.
- *Cost reduction innovation*: Eliminate work that is no longer needed.

- *Product & service extensions*: Add more quality with only minimal additional cost.

Customer service excellence

Get in tune with your customers through exceptional customer service. Value your customer comments and complaints as a source of innovation. The more difficult the problem, the better your chances for finding breakthrough innovations.

Ask your customer questions and listen carefully. Read between the lines, because customers may not always be able to explain everything. Determine what is missing and what it will take to satisfy your customer or client.

Personal performance excellence

Traditionally we have been told that the way to improve personal performance is to concentrate on improving our weaknesses. The assumption is that the easy stuff will take care of itself. Sadly, by using your time to fix your weaknesses, it's likely the best you will ever become is *mediocre*.

The fact is, the easiest way to attain higher levels of achievement is to make better use of your natural talents, called *signature strengths*. When you use your "core" strengths, you will be doing what you do best. So look to re-invent your job with your **signature strengths**.

Thinklet: You can download a Personal Patterns of Success thinklet at: nthdegreesoft.com/pps.html.

Get a Personal Innovation software application demo at nthdegreesoft.com/dmpi.doc.

Value Creation Mindset

I see the company ... and it's me!

The time has come when all of us must personally hold ourselves accountable for the success of our company or organization. If you personally do not protect and nurture your company, you cannot expect it to survive for long ... or expect your job to survive.

Industrial-age workers: The old entitlement mindset

Many of us have it and don't even realize we have it ... it's an "entitlement" mindset! Entitlement has been creeping into our thinking for the past half century when America was in a period of extremely high prosperity. Corporations were so flush with profits that they could afford to keep employees on payroll, even though those workers were no longer contributing enough.

As benevolent as that policy may seem, it helped to give workers an entitlement mindset. Workers came to believe that years of service, good intentions, and loyalty automatically entitled them to pay increases, promotions, and lifelong job security.

Knowledge-age workers: The new value creation mindset

The fatal flaw in entitlement thinking is that it assumed America would forever maintain its high level of profitability. The game has changed. The whole world is shifting toward greater equality of opportunity. American companies must now compete globally.

Today, everyone needs to acquire a "Value Creation" mindset toward being paid for their contributions. This kind of mindset must be woven into day-to-day work habits and influence everyone's consciousness at every level.

Remember, value creation is making sure you *contribute more than you cost*, not about how many hours you work or how *busy* you are.

Reinvent Your Job

**Be pro-active in changing your job ...
otherwise you might not have a job left to change.**

Innovation requires that you fill your head with lots and lots of information and knowledge. The more you take in, the higher the probability that you will make insightful connections.

Here are some “learn by doing” things to start making significant innovations and improvements in your job.

1. Analyze your routine work tasks and activities.

Typically people make marginal improvements in their job by working harder or putting in longer hours. However, knowing the best uses of your time can be a much more productive way to enhance your performance.

One of the best ways to improve your job is to eliminate work tasks that no longer have value. This innovation process is based on the Pareto principle that states: 80% of work results come from only 20% of work effort - or in other words - only 20% of work results come from 80% of work effort.

The reason this disparity occurs is that typically over the years, many of our current work tasks have simply accumulated into our jobs. Things that once were important but have lost their value ... are still getting done!!!!

So instead of continuing to put more effort into your work tasks, decide if any work can be eliminated. Re-inventing is more about *stopping* work than *starting* new work.

2. Develop your peripheral vision.

Most workers concern themselves with their own special interests and tasks and don't look beyond them. Take a big picture

perspective about your job. To do this, you need to develop a sharper peripheral vision of what is happening at the boundaries of your job. These boundaries or connection points deserve your attention as much as anything.

Consider taking a systems approach and draw a mind map of your work methods, processes, and procedures. Ask yourself questions like the following:

- What are all the inputs (things I need) to my job? Do I need them all?
- Can these inputs be improved?
- What value do I add to these inputs?
- What are all my outputs/deliverables (things I produce)?
- What do my clients/customers do with my outputs?
- Do they really need them?
- How can I add more value to my outputs?

For comprehensive mind map resources go to innovationtools.com/resources/mindmapping.asp.

3. Re-tool yourself and your job.

The value you bring to your job can be directly related to the tools you use. As new tools come to the marketplace, new opportunities for improvement come with them. Take it upon yourself to learn as much as you can about new tools.

Mastering new tools gives you insights on how to improve your job. New tools help you produce more and better results in less time.

Ask yourself questions like these:

- What tools do I currently use? Why?
- Am I overly attached to using certain tools? Why?
- How is my job changing and what new tools can help improve my performance?

Team Innovation - FTE

The synergy of discovery teams leads to powerful innovations.

Real innovation comes from one thing ... hard work. It comes from curious people looking for problems and studying the world in search of ideas. Innovation is more and more about people working together.

Collaborative Team Innovation software application

This application facilitates teams to quickly experiment with existing technologies and create new innovations in the following areas, at minimal cost. It uses Open Innovation and Self-organizing Team approaches to do it.

- *Applied technology innovations:* Use existing technologies in different ways to create more value.
- *Next generation products & services:* Develop innovations that leapfrog your competition.

Open Innovation

For many companies, innovation remains an internal and proprietary activity, conducted largely from knowledge inside the organization. Many organizations are realizing that they can no longer afford to rely entirely on their own knowledge, but instead must find ways to benefit from sharing ideas and knowledge with outside entities.

Beyond being just another business fad, open innovation creates new sources of ideas and solutions with the potential of influencing every aspect of your business.

Self-organizing teams

The best and fastest way to benefit from open innovation is by developing self-organizing teams. Team members collaborate directly with each other, rather than through traditional structures and hierarchies. They come together with a shared vision and goals, because they are intrinsically motivated to do so.

The following types of self-organizing teams produce more comprehensive innovations in less time and with lower costs.

- **Customer-led teams:** Find your customers' pain and needs. If the pain is cost containment ... then lower your costs through a variety of options. Another option is to make your customers aware of a new need they have not yet noticed.
- **Business partner teams:** We often underestimate the value of our various business partners, and in particular the value of our suppliers. When the market gets tight, your suppliers may struggle more than you. Typically when you help them succeed, you are helping yourself.
- **Applied technology teams:** Technology alone is rarely the key to unlocking new innovations and economic value. Amazing innovations are derived by combining the capabilities of existing technologies into new ways of doing business.

Collaboration Mindset

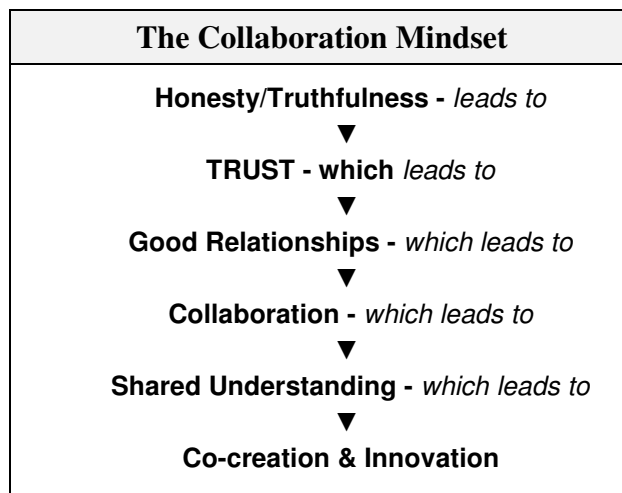
**The old business mantra “*Stop talking and get to work*”
is replaced by “*Start talking and get to work.*”**

Collaborative thinking practices are becoming essential to achieve sustained performance. The ability to work and think collaboratively enables knowledge workers to leverage their collective knowledge, ideas, and wisdom.

Here are two things to start you to becoming a collaborative thinker:

1. Build a collaborative thinking mindset.

The cornerstone of collaboration is TRUST. It is very unlikely that effective collaboration will occur without the following mindset.



2. Start using Conversation over Communication

To become an effective collaborator, you must develop the skill of conversation rather than communication. While most people are familiar with communication, conversation is often an unfamiliar way of corresponding. To improve your conversation, start using the Dialogue Process at nthdegreesoft.com/dip.html.

Rapid Experimentation

Embrace failures ... they are the steps to success.

Many people are paralyzed by fear of failure, however small. But by definition, if you experiment you are going to fail. Thomas Edison experimented and failed as many as 10,000 times before he succeeded in inventing the light bulb.

Realize that experiments resulting in failures are *not* failed experiments. Instead, these experiments generate new information that was previously unforeseen. This new information gives you vital input for doing additional experiments.

How to do experiments

If you are going to fail, do it quickly and cheaply and learn from each experiment. Here's what to do:

Step	Action
Target innovation.	What potential innovation do you want to develop an experiment for?
Identify learning objectives.	What do you want to learn from the experiment?
Write hypothesis statement.	What do you expect will be the result (outcome) of your experiment?
Design experiment.	What are the experiment steps? (Keep it simple; maybe just a mental experiment is needed.)
Analyze results.	How do actual test results compare to hypothesis?
Identify new knowledge.	What important things were learned?
Identify next step.	What is the next step? Note: to do quick experiments, make only a few changes.

Organization Innovation

“Big Picture” innovation ... more important than ever!

Today’s organizations are complex systems, but few professionals are trained or have the experience necessary to deal with a wide-angle view of the whole business. The Organization Innovation application overcomes ingrained business practices and guides the development of “Big Picture” innovations in the following ways:

1. Business process innovations: Re-design business processes to reduce costs and add customer value.

An organization is not just made up of a collection of people, but also of processes ... the ways of conducting business. Sometimes these processes are well conceived, up to date, and carefully managed. But too often, many have evolved into *bad processes*. And bad processes can turn good workers into *bad performers*.

So instead of spending time fixing workers, who *are not* broken, you should spend time fixing organizational processes that *are* broken.

2. Disruptive “discontinuous, radical” innovations: Are new technologies that supersede established business products and services.

A disruptive innovation is a new technology that has the potential to significantly transform the demands and needs of existing mainstream markets. The internet is an example.

3. Sustainable futures innovations: Are innovations that balance nature’s resources with nature’s ability to meet demand. See description several sections below.

Facilitative Leadership Mindset

The ability to help others reach their full potential is one of the most important of all 21st century management skills.

More than ever, work is being done by cross-functional teams that include internal, external, and global workers. Successfully running these types of teams requires a new breed of “facilitative” leaders. See Building High Performance Teams nthdegreesoft.com/hpt.html.

The growing importance of meetings

As work becomes more interconnected, there is a growing importance of teams and team performance. And meetings, as much as they are loathed, are the setting in which much of the important work gets done. *Quality meetings are now more important than ever.*

Everyone who leads and manages people needs to understand that the success of any team and organization depends on the success of its meetings.

Magical meetings

While we have all experienced our share of bad meetings, most of us have also experienced the occasional magical meeting. It’s where the room is filled with energy, thoughts flow freely, and powerful ideas and solutions are created.

These meetings occur when you adopt a facilitative leadership approach that concentrates on empowering all meeting participants to think better and become facilitators themselves.

Instead of sitting and waiting for direction, participants become engaged in the meeting. And instead of complying with orders, they create solutions for which they have a high level of commitment.

For more information on how to facilitate magical meetings, go to nthdegreesoft.com/fmm.html.

Sustainable Futures

In a sustainable world, uses of nature's resources are in balance with nature's capacity to meet demand.

This mindset is based on the premise that existing patterns of innovation are unsustainable. And, current levels of consumption in developed countries can't be replicated worldwide.

The evolution of innovation

1. Production innovation: Forty years ago, innovation was driven by the need to produce things more efficiently. This stage was characterized by mass production of basic goods and services.
2. Consumer innovation: Current innovation is driven by marketing. It is characterized by selling things that we don't need and by *consumption that creates lots of WASTE*.
3. Sustainable futures innovation: This type of innovation is a cross between production and consumer innovation. It is driven by customers who see the world as a place for creation rather than for consumption. It is characterized by *consumption with utility and ADDED VALUE*.

Is it possible to - *have one's cake and eat it too?*

Sustainable innovation focuses on a concept of "prosumers" or customers who operate not only as *Consumers* but also as *Producers*. Sustainable innovation enables customers to not only use the product or service, but during consumption can create new added value.

Examples of this prosumer trend: EBay consumers become resellers. American Idol – viewers become part of show. iTunes - users not only listen to music but mash songs together to make more music. Self-help prosumers want tools to fix things themselves. And even this handbook is designed to not just be READ ... but also to be USED.

Conclusion

Einstein once said:

"What's different about me? It's my ability to ask the right questions clearly and cleanly."

As I started writing this conclusion, I came across the following quote from Tom Friedman's book, The World is Flat.

"When I was growing up, my parents used to say to me, "Tom, finish your dinner -- people in China are starving." But after sailing to the edges of the flat world for a year, I am now telling my own daughters, "Girls, finish your homework -- people in China and India are starving for your jobs."

So instead of a business workforce development conclusion, I'm ending with an educational perspective: How might students become better prepared for a 21st century workplace?

Answer oriented education

A little more than a century ago industrial companies valued standardization. Factory workers were measured on how efficiently (robot-like) they worked and how well they could memorize routine work practices. They were not encouraged to ask a lot of questions or do much on-the-job thinking.

Education successfully met those needs with standardized curriculums and standardized tests that required memorizing standard answers. Even today, students are measured on their ability to give the right *answers*:

- Answers to formal tests ... Answers to pop quizzes
- Answers to a problems ... Answers to hypotheses
- Answers to teachers' questions ... Answers to everything!

Answers STOP thinking ... Questions START thinking

There is nothing wrong with memorizing answers. In fact, the more answers you can memorize, the more successful you'll become. The problem with this approach, however, is that generally once an *answer* is given ... *thinking stops*.

- When the test is done, thinking about the content can stop.
- When we find an answer (any answer) to a problem, thinking about the problem can stop.
- When someone gives us an answer, even if it's the wrong answer, thinking can stop.

Question oriented education

The underlying theme of this handbook, and the cornerstone for improving knowledge workers' thinking, is their ability to first become *effective questioners*.

Looking back at my education, I can't remember a single test that measured my ability to ask good questions. What is needed in education today is a way to measure student's ability to ask the right questions. In other words:

The question ... becomes the answer.

If students' thinking performance can be measured by their questioning abilities, then the questions themselves would not only promote better learning, but also better understanding of content.

Co-author wanted

I would like to work with an educator to develop another handbook from an educational perspective. If interested, please contact me at dj@nthdegreesoft.com.

Appendix 1

Facilitated Thinking Technology

*Facilitated Thinking Technology
is a really big idea ... one the world needs.*

Alexander Linden, VP Emerging Technology, Gartner

What if there was a way to amplify your creativity, problem solving, systems thinking and all your thinking abilities anytime you chose?

What if your thinking could be facilitated from the wisdom of the world's best consultants, educators, and coaches ... on-demand?

There is a way ... it's called Facilitated Thinking Technology™.

How does it work

Rarely can people bring to mind all the right mental tools and questions to ask at the exact moment of thinking. Instead of relying on human memory, Facilitated Thinking Technology takes a different approach.

Its goal is to provide cognitive tools, called thinklets, that function like a skilled consultant or coach who is always available and ready to support your thinking needs, precisely when you need it.

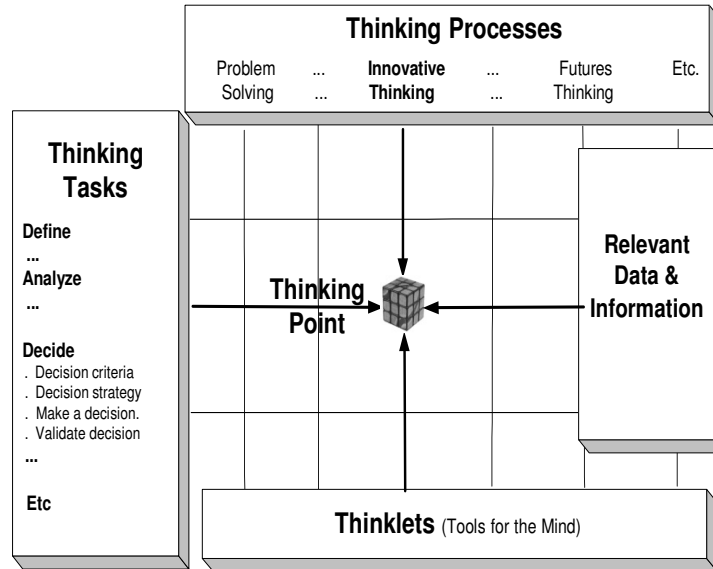
This technology is built on the premise that using thinking methods and tools follows the same principle that underlies the selection of any manual tool: *choose one appropriate for the task at hand.*

Thinking Emulation Grid

At the heart of facilitated thinking technology is the following Thinking Emulation Grid™. This grid organizes thinking components into a smoothly coordinated and integrated system called Facilitated Thinking Environments (FTEs).

The grid works by guiding thinkers along specific Thinking Processes and Thinking Tasks to reach Thinking Points. It is at these organizing points where you apply the thinklets as if the human consultant or expert were working directly with you.

Thinking Emulation Grid™.



In some respects, the grid functions something like Google. While Google uses *key words* to find the right information, the Emulation Grid finds the right cognitive tools, *thinklets*, needed to improve your thinking effectiveness.

The grid is also based on the way our brain works. According to brain theory, the mind does not store information alphabetically, like a dictionary, but organizes information by association. This is why one thought leads to another and how “thinklets” function.

Q: What are Thinklets? A: Tools for the Mind.

The 20th century can be characterized as an era when the invention of physical tools increased labor productivity. For example, 125 different types of pliers alone were invented to do 125 different labor tasks.

The 21st century will become the era of the invention of tens of thousands of cognitive tools (thinklets) that improve thinking productivity.

Thinklets can be viewed as mental triggers or “thought switches” that activate thinking patterns not commonly used. These thought switches lead the mind down different pathways to develop new thoughts, ideas, and solutions.

In its purest sense a thinklet can be as simple as ... asking the right question at the right time. Or, a Thinklet may provide small bursts of thinking stimuli (expert “facilitation” questions) embedded in traditional thinking techniques, templates, and worksheets.

The Bottom Line

Facilitated Thinking Environments (FTEs) can help make the average worker become good, the good become excellent, and the excellent can attain exceptional levels of innovative thinking.

Even Einstein had his circle of colleagues who regularly asked him questions and served as his Facilitated Thinking Environment.

Note: This is Not AI (Artificial Intelligence)

FTEs are not a substitute for human thinking. In fact, they are just the opposite of Artificial Intelligence (AI). The purpose of AI is to automate human thinking in ways that lead to deterministic answers. AI works well with routine thinking that follows a script.

The purpose of Facilitated Thinking Environments is to enhance natural human thinking effectiveness.

Get a white paper on Facilitated Thinking Technology at nthdegreesoft.com/ft.doc



About the Author

Dennis Heindl is President of Nth Degree Software, Inc. a company he founded in 1999 on the vision that software technology could enhance natural human thinking abilities.

His company's flagship product, *MindSights*, is a first of its kind "Facilitated Thinking Technology" software that emulates how the best trainers, facilitators, consultants and coaches provide intellectual guidance to improve *in-the-moment* thinking effectiveness.

Suggested Readings

This handbook was developed based on researching many hundreds of wonderful thinkers. The most influential are:

- Clayton Christensen, *The Innovator's Solution*, 2003
- Steven Covey, *The 8th Habit*, 2006
- Thomas L. Friedman, *The World is Flat*, 2007
- Tom Kelley, *The Art of Innovation*, 2001
- Thomas M. Koulopoulos, *The Innovation Zone*, 2009
- G. Lafley and Ram Charan, *The Game Changer*, 2008
- Langdon Morris, *Permanent Innovation*, 2006
- Tom Peters, *The Circle of Innovation*, 1999
- Roger C. Schank, *The Creative Attitude*, 1988
- Peter Senge, *The Fifth Discipline*. 1996.
- Paul Sloane, *The Innovative Leader*, 2007
- Paul Trott, *Innovation Management*, 2008

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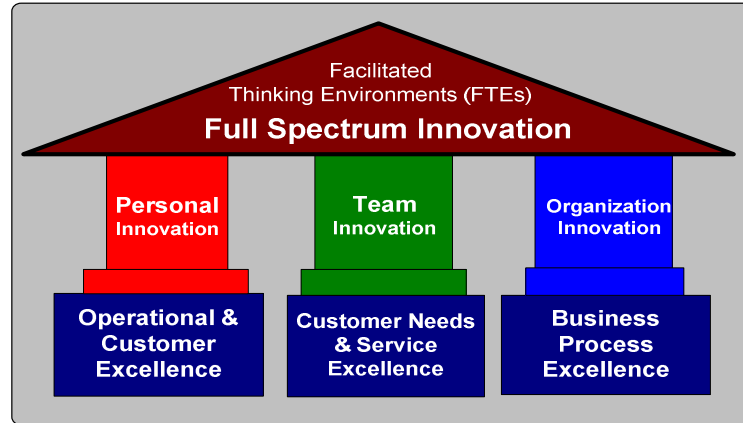
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