Tell me more about…….
Low cost, low risk, fast improvement and innovation

for products, services and processes; and better collaboration

To Start in Seconds, first see↓

Route-map – from start to implementation

Recipe – foundations for group collaboration

You can….

Further information

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A special message

Innovation is like a 'voyage of discovery'.

As you journey,
you discover and understand more about:
things
including products, services, processes;
people
such as end-users, customers, colleagues;
yourself,
your ingenuity, perseverance and humanity.

And, your story can help and inspire the next generation.

Free download:
www.nasa.gov/offices/NHHPC/events/m2m-connects.html

Some Common Assumptions about Successful Innovation

- **Innovation is about better products or new technology**
  - **Success is often by delivering better customer/end-user value**
    - Achieved through product, technology, service delivering better utility etc
    - Better value may also come through lower cost/price
- **Innovation focuses mainly on creativity**
  - **Successful innovation is more than having bright ideas**
    - Observation, data collection, analysis and insights support efforts
    - Implementation (including marketing and delivery) involves considerable effort
- **Innovations usually come from inventors and innovative suppliers**
  - **End-users often source of successful innovations**
    - Innovation moves back up supply chain or out to wider use
- **Innovation is costly, high risk and time-consuming**
  - **Efforts (from start) on enhancing value can be low cost, low risk**
  - **Careful management can reduce risks**

Why Use a Methodology?

To make innovation and improvement

- Easier
- More productive
  - Better outcomes
  - Faster
  - Lower risk
  - Lower process cost
- More fun (for everyone involved)

Extraneous Influences on Innovation

- Personal
  - Preconceptions about innovation (conventional wisdom)
    - Costly, risky, slow and product or technology focused
  - Other influences
    - Personality and upbringing/experience, paradigms (conceptual framew'rks), heuristics, rationalizations (nothing for me), language
- Organizational
  - Culture: change, risk or innovation averse
    - Slow and extra hard work to get anywhere
  - Structure, priorities and rewards not set up for innovation
    - Collaboration, flexibility, 'can do', and 'hands-on' not the norm

Paradigms and Innovation

- Paradigm, (or conceptual framework)
  - Incl: knowledge, assumptions, beliefs, expectations etc.
  - Impacts incl: on observations, analysis, decisions, research etc.
- Everyone affected by paradigms, incl: end-users, you, colleagues
- Innovation (and major change), creates new paradigm
- Finding, (and understanding) not easy, try:
  - Creating real or imaginary Value-adding Interface, analyse
  - Asking, what's new (or changed)?
  - Asking, who is impacted and how (by new or changes)?
  - Could these characterize an underlying paradigm (especially of assumptions, beliefs, expectations)?

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Value-adding Integration (VAI)
Carrying out VAI
Managing VAI Innovation
Examples of VA Interfaces
Ethereality examples
Advantages of VAI 1, 2, 3
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VA Integration brings VA elements closer together in ways that add further value

- Thru' Integration of value/value-adding part(s)
  - Better end result is obtained
  - Waste/cost and workloads reduced
- Opportunities for further enhancements arise
  - Integration adds value in its own right
  - Creates new situation for further improvement
- Problems at interfaces are reduced or eliminated

Definitions

- Value: end-user defined value/worth
  - Recognized as need, want, perception, utility, functionality etc.
- Value-adding: creates or enhances value
  - Provided by utility, functionality, feature, performance etc. (existing in value-adding elements. e.g. in products or services)
- Value-adding activity/process: needed to provide value
- Non-VA activity/feature: no value to end-user
- Integration: better value-adding 'fit' or co-ordination
  - With end-user values, perceptions, needs etc.
  - Other VA activities (in a process)

Value-adding Interfaces

- Value occurs at interface - VA elements meet here
  - Between: product (or activities) **and** end-user; process stages or activities; parts; patients **and** their world etc.
  - Value can be created or lost here
  - Interfaces are often overlooked, where problems occur
- Integration changes interface or creates new interface with potential for adding more value
- Interfaces exist within end-user's 'Big Picture'
  - Can be conceptual, physical, environmental, aspirational, life style and/or a combination

Summary – Main Principles

- Value is only added at the Value-adding Interface
  - Better integration reduces costs/wastage, enhances end-user value
- The end-user's 'world' (or Big Picture) defines 'value'
  - VAI can help in understanding end-user's 'world' and identify value
- Successful innovation/improvement arises from better Value-adding Integration with end-user's world
  - Risks from innovation are substantially reduced
- Innovative integration leads to further opportunities for adding value
  - New situation created at substantially reduced cost and risk

Low risk innovation using VAI

- Inherently low risk activity (compared to other ways):
  - Bringing value-adding elements closer together in ways that add further value/reduce costs
  - Makes much use of data and analysis of value-adding/loss
- VAI process includes stages (2, 3) to reduce remaining risks
- Use VAI process to correct any problems
  - Provides method for analysis
  - Facilitates collaboration
- Creating a VA interface:
  - Prevents some problems occurring
  - Provides mechanism for correcting problems and collaboration

Low cost innovation using VAI

- Inherently low cost (and risk) activity to 'product' (compared to other ways of carrying out innovation):
  - Not carrying out major changes to 'core' of product, service or process
  - Focus is on value-adding/loss interactions, which can be improved through minor (not major) changes
- Not making high cost investment in:
  - radical change to existing 'core' technologies
  - major change to existing production etc. facilities
- Wider (VAI) focus for improvement
  - Extends beyond narrow definition of product, or service to include customer (or end-user) experience and interactions etc.
  - Includes all value adding activities

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Tell me more about……..

Carrying out Value-adding Integration (VAI)

Carrying out Value-adding Integration

- Step 1 Develop Value-adding Integration proposals*
  (Work around value-adding interfaces: create, understand and make them work better)
- Step 2 Check proposals for technical/commercial compliance/expectations*
- Step 3 Check successful fulfilment assurance*

**Overall you are trying to :*
Identify (e.g. the problem, or opportunity)
Analyse (e.g. the problem, or opportunity)
Innovate or improve, devise a solution with added-value and/or lower costs
Make it work, in accordance with your definition of success

STEP 1 Develop VAI Proposals

- Place within 'Big picture'
  - Examine end-user (or next user) needs, wants etc.
  - Examine next activities (in process, VA or supply chain)
  - Characterize (key) interfaces (create/add V, problems)
- Use VAI tools, e.g. (as appropriate):
  - Internet
  - Integration space, Integration plan
  - Time, VA, Interface Analysis; eliminate Non-VA activity
- Achieve better VAI 'fit' (fit, form, function), or co-ordinate with (1) end-user (2) other VA activities

STEP 2 Check compliance

- Check technical/commercial compliance
  - Against requirements, specification, statutory etc.
  - Against (precise) expectations (of end-user, etc.)
  - Review cost/price and/or value for money, viable?
- Resolve any remaining issues
- If important issue unresolved consider alternatives (failure is not one of them)

STEP 3 Assurance

(successful outcome fulfilment assurance)

- Check what is proposed to deliver outcome
  - Assess risks and mitigation measures
  - Review Management plan/arrangements, resourcing, delivery methodology etc.
  - Refine and improve, reduce negative side-effects
- Unacceptable residual risks, consider alternatives

Oversight and Review

(identify and take forward strategic lessons)

- Questions arising from VAI activity (innovation creates new situation):
  - What has changed, or is changing (from most to least important, Big Picture)?
  - What needs to **now** change (links, dependencies, implications, paradigms)?
  - What should we do (how, when, next VAI steps)?
- Available to help provide answers:
  - Knowledge - existing and gained (thru' VAI Steps 1 to 3), e.g.:
    - About customers, processes and collaborating
    - What is still (largely) unknown, but important
  - Insights developed (arising from analysis of the knowledge gained)
  - Realistic predictions arising from VA Integration theory, observation, analysis
  - Lessons learned (what could be done better next time)
- Available to help move forward:
  - Action plan, e.g. including goals, program, strategy
  - VAI methodology

Some VAI Tools

- May be helpful at Step 1 to create new/better VA Interfaces
- Value-adding Integration Space (between VA elements)
  - Suggests other (unconnected) VA elements can be added
- VA Integrations (descriptions):
  - Sequential (e.g. in process, activity or product construction)
    - Interposing non-VA activities or interfaces removed
  - Lateral (e.g. new VA element(s) added to or between existing)
  - Similarity (e.g. combine VA parts, remove non-VA interfaces)
  - Diversity (e.g. dissimilar VA services combined, collaboration)

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How to Start?

- Use a pilot/trial (of VAI innovation efforts)
- Use for small improvements first
  - Less risk, lower cost
  - Faster to introduce
  - Experience Curve effects
- Adapt to required application(s)
  - Use VAI to improve use/suitability of VAI methods

Where to start?

- Management priorities and objectives
- Existing problem and neglected areas
- Customer facing interface(s)
- Places VAI can reduce costs and improve value

Management Overlay (Success Factors)

- Motivation (to achieve successful outcome)
  - Why should they bother, more work, no reward, risky?
- Supportive framework (by organization)
  - How supportive is existing set-up? (resources, culture)
- Competent and adequate human resource
  - How much do they know about successful innovation?
- Management deployment (focuses efforts)
  - What activities are in place to monitor, manage work?

Organization dynamics and VAI

- New situation (arising thru' VAI competency):
  - Improved understanding of value creation/loss
  - Imperative for innovation and collaboration; driven by:
    - Visibility of missing or poorly performing VA interfaces
    - Access to potential low cost, low risk, fast innovations
    - VAI activities being complementary to normal work
    - VAI providing mechanism for flexible collaborations
    - Interest in improving VA interfaces (incl. potential gains)
  - Opportunity for management facilitation/support (of dynamics for innovation and collaboration now present)

Business ethics and VAI

- Ethical dimension to business decisions (in organizations)
  - Can exist as doing what is 'right' versus expediency ('right' e.g. responsible, prudent, honest toward customers, staff, society)
  - Trust essential for efficient operations
- Ethical values aiding innovation, include:
  - Freedom from fear (e.g. of failure, consequences)
  - Freedom of speech (e.g. to be critical)
  - Freedom of conscience (e.g. not causing harm)
  - Freedom of association (e.g. highest and lowest)
  - Freedom from want (e.g. of resources, future income)
- VAI is consistent with these values and a positive facilitator
  - A business ethics downside to VAI has not been identified

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Tell me more about……..

Examples of Value-adding (VA) Interfaces

VA Interfaces – Arising through **Functionality** or **Utility**
Value (to the end-user) is added through the functionality present (ability to move sand, help process of building sand-castle). VA Interfaces, sand-blade, sand-inside of bucket.

VA Interfaces – Interactions **with end-user**
Value arises (or is lost) through interactions.

VA Interfaces – **Performance** (designer R.J. Mitchell)
Value (to pilot) is added through flying performance. Various VA Interfaces (value is added or lost) include wings-air, control surfaces-air, controls-pilot, engine-propeller-air.

Summary: VA Interfaces are 'places' where interactions occur that add value (for end-users). They can be conceptual, physical, environmental, aspirational, life style and/or a combination.

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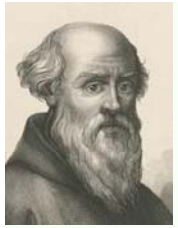
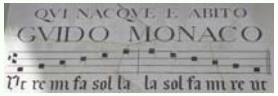
VA Interfaces – In **Process** (improved by G. & R. Stephenson)
Value (to the end-user) is added through the process of steam production and use to move train. Various VA Interfaces include fire-water (in boiler), steam-piston, fire-exhaust steam.





VA Interface – **Between Doer and Activity**
(work or play etc.), e.g. singing; value is added by singer and song. Guido of Arrezzo invented musical notation to improve the VA Interface.

'Collaboration' by kind permission of the Barth Syndrome Trust

VA Interfaces – **Collaboration** (in ways that add more value), examples; customer - you, colleagues (or other organizations) - you, 'Romeo - Juliet', Rogers & Hammerstein, multi-disciplinary medical research.

VA Interfaces – **Subtle combinations** add more value. VA interfaces exist between player - guitar, light - dark, colours, movem't – calm, girl – off canvass; visual - enigmatic

The Guitar Player
by J. Vermeer

VA Interfaces between **Serendipity-you**, also **end users-their worlds.** Serendipity: making fortuitous discoveries by accident. Many VA Interfaces everywhere for you to spot, study, enjoy...

Please consider a donation toward world-leading collaborative research into Barth syndrome, a life-threatening rare disease, visit www.barthsyndrome.org, www.barthsyndrome.org.uk.

Choose something that inspires you

– How many Value-adding Interfaces can you identify? Can you make them better?

- How many (problem) interfaces can you find that do nothing or only lose value? Can you remove them, make them work better or add value?

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Tell me more about……..

Ethereality* in Examples of Value-adding (VA) Interfaces

VA Interface with you -
'That is the land of lost content, I see it shining plain,
The happy highways where I went, And cannot come again.'
(from poem by A.E. Houseman)

VA Interfaces – Interactions **with end-user**
To also delight the palate and the eye. (left)
To also give a sense of achievement. (right)

'And danced the skies on laughter-silvered wings; … wheeled and soared and swung,.. Hov'ring there, I've chased the shouting wind along, and flung my eager craft through footless halls of air....' (from *High Flight* by J.G. Magee Jr)

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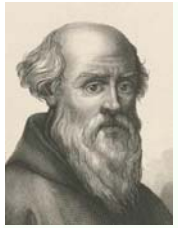
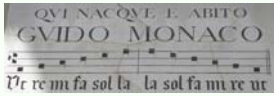
VA Interfaces – In a new experience (F. Kemble, 1830)
"The engine set off at its utmost speed.. I stood up, and drank in the air before me. When I closed my eyes the sensation of flying was delightful and strange beyond description.."





VA Interface – **Between Doer and Activity**
The sleep of a laboring man is sweet
(from the *Book of Ecclesiastes* 5:12)

'Collaboration' by kind permission of the Barth Syndrome Trust

VA Interfaces – **Collaboration**
'We few, we happy few, we band of brothers;'
(from *Henry V* by W. Shakespeare)

VA Interfaces – with the viewer

'With all its sham, drudgery, and broken dreams, it is still a beautiful world.' (from *Desiderata* by M. Ehrmann)

Summary: VA Interfaces are 'places' where interactions occur that add value (for end-users). They can be conceptual, physical, environmental, aspirational, life style and/or a combination.

"A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty." (Winston Churchill).

Please consider a donation toward world-leading collaborative research into Barth syndrome, a life-threatening rare disease, visit www.barthsyndrome.org, www.barthsyndrome.org.uk.

***Ethereality**: Highly refined, delicate and/or intangible.
Sometimes present, as a result of careful management of value-adding interfaces, and appreciated by end-users etc.

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Overview of Potential Outcomes

- Better products and public services; lower cost
- Process improvements and efficiencies
- Reduced risks associated with innovation
- Reduced wastage and environmental impact
- Improved working environment
- Help with problematic situations
- Faster (overall) research progress

Problematic Situations

- VAI can help produce better outcomes where:
  - Remote or virtual working is difficult:
    - Co-ordination, understanding, duplication etc.
  - Interface problems exist between:
    - Product - user (usability, functionality, performance etc.)
    - Stages of an overall process (delays, errors, losses etc.)
    - Patients and environment (quality of life - rare diseases)
  - Available resources and funding are limited
  - Competing at a disadvantage, typically:
    - Size, market standing, new entrant, costs

USPs of VAI

- Better products and services
  - Identifies (new) place(s) of value (at interfaces)
  - Improvement (often) low cost, low risk, in-house
  - Greater focus on customer, client
  - Reduced wastage and environmental impact
  - Further potential for adding value (at interfaces)

USPs of VAI

- More efficient activities and processes
  - Reduced non-value-adding activity, time, costs
  - Reduced interface problems
  - Improvement (often) low cost, low risk, in-house
  - Reduced wastage and environmental impact
  - Further potential for process improvement (at or near interfaces)

USPs of VAI

- Risks to successful outcome reduced
  - Assessing risks directly
  - Assessing pro-active measures – forward looking
- Applicable to new businesses
- Applicable to innovations
- Fits in with later Plan, Do, Check, Action cycle (during implementation of proposals)

USPs of VAI

- Reduces waste and environmental impact
  - Clear definition of wastage and non-VA activity
  - Wastage identified (through clear definition)
  - VAI focus eliminates/reduces wastage (and non-VA activity)

USPs of VAI

- Improved working environment
  - Reduced non-value-adding workloads
  - Less interface fire-fighting and problems
  - Less stress on individuals (emphasis on process)
  - Reduced risk of failure (below expectations)
  - Potential for more individual contribution
  - Higher morale/confidence and espirit de corps

USPs of VAI

- Simple (unified approach), flexible and fast
  - Reduced time, effort and resources to apply
  - Increased likelihood to find/correct problems
  - Promotes efficiency and adding more value
  - Reduced risk of failure (below expectations)

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USPs of VAI

- Facilitates:
  - Customer/client focus (for activities)
  - Creativity and ideas (outside existing paradigms)
    (see also next slide)
  - Analysis (into VA and non-VA elements)
  - Collaboration, co-ordination
  - Finding new opportunities (low cost, low risk)

USPs of VAI

- Creativity and thinking outside the box
  - Creates pathway into new and novel VA situations
    (for example by creating and investigating new VA interfaces)
  - Moves discussion, analysis, creativity to new situation
  - Challenges 'reality' (knowledge, assumptions, invention)
  - Provides basis for imaginative collaboration on:
    - Finding and refining product features (or utility etc) to add
    - Discovering items (eg features, utility or stages etc) to omit
    - Developing next steps

USPs of VAI

- Education and training
  - Greater understanding of end-user, next-user perspective(s), needs, wants etc.
  - Greater understanding of VA and non-VA
    - In product and service features
    - In activities and processes
    - In healthcare and quality of life issues (rare diseases)
- Helps non-specialists
- Faster learning through cross-pollination

USPs of VAI

- Easy and fast to implement
  - Flexible, can be adapted to situation
    - Apply to selected areas/problems
  - Fast training and learning
  - Integrates with existing improvement efforts
  - Uses VAI to adapt and improve application of VAI principles and methodology to each situation
    - Includes some automatic or self-adaptation

USPs of VAI

- Subtle beneficial effects present
  - For personnel to facilitate improvement activity
    - Reduces their workload, improves their work environment
  - For personnel to be proactive for assurance
  - Scalable to complexity, innovativeness of task
  - Changes mind-sets and expectations, including:
    - Attenuates insularity ('not invented here', cliquishness)
  - Better understand social/public service aspects
  - For patient/clinician dialogue (VA in healthcare)

USPs of VAI

- Innovative Pricing, Risk Management/Sharing
  - Additional information available (from VAI) on:
    - Risks to a successful outcome (contract, project etc)
    - Proactive management for a successful outcome
    - Risk mitigation measures (existing and proposed)
  - Potential to:
    - Reduce risk premium (fixed price)
    - Accurately monitor rate prices against progress
    - Risk share between buyer and supplier
    - Apportion contract to fixed and rate prices segments
    - Incentivise against goals

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- Better products and public services; lower cost
- Process improvements and efficiencies
- Reduced risks associated with innovation
- Reduced wastage and environmental impact
- Improved working environment
- Help with problematic situations
- Faster (overall) research progress

USPs of VAI

- 'Reaching-Out' & altruism: mutually beneficial
  - Business ⟺ Public Sector interchange
  - Business or Public ⟺ Healthcare interchange
  - Business or Public ⟺ Med. Research interchange

(Interchange is facilitated; the more you do the more benefit you and others get through cross-pollination and changed paradigms)

USPs of VAI

- Improved healthcare (rare disease patients)
  - Few patients, clinicians, (widely dispersed)
    - Easier access to resources, data and data collection
    - More effective dissemination of information (symptoms, treatments, latest research)
  - Better patient and 'quality of life' engagement
  - Identify and prioritize highest VA activities
  - Reduce non-VA activity and overall costs
  - Facilitate collaboration, discussion and ideas

USPs of VAI

- Faster translational medical research
  - Rare diseases: few patients, clinicians, researchers
    - Easier access to resources, data and data collection
    - More effective dissemination of information (symptoms, treatments, latest research)
  - Facilitate collaboration, discussion and ideas
  - Reduce non-VA time periods in overall progress

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About us

- Green Leader Limited
  Rail electrification consulting engineers
  - 14 years of virtual operations
  - Value-adding Integration approach to business
- CEO and founder (poor hearing)
  - Engineer (electrical/electrification)
  - Voluntary work in rare diseases
    - Barth Syndrome Foundation Inc. (virtual working)

Further Information

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Origins of VAI Methodology

- Green Leader (GLL) experiences (small business - SME)
  - Major input from GLL ways of working with Clients
    - Focus on creating value and close working together
    - Empirical/scientific method foundation (incl. precision, thoroughness)
  - Experience of problems at system, contractual, operating, man-machine interfaces and with complex procurement
- Translational needs of rare disease research
  - Barth Syndrome Foundation USA/Trust UK
  - Looking for ways to get more from limited funds
- Participation in SME Test Group (with UK Gov.), saw:
  - problems of innovative SMEs engaging with public sector
  - need for SMEs developing simple, low cost, competitive USPs

Barth syndrome (BTHS)

A rare, serious (life-impacting and life-threatening), genetic disorder (rare disease) primarily affecting males, resulting in a complex inborn error of metabolism.

Led by the Barth Syndrome Foundation Inc., the Barth Syndrome Community of affected families, clinicians, researchers, volunteers and donors is working globally to raise awareness, support affected families and find treatments, and a cure – their mission is a world where no one will suffer or perish from Barth syndrome.

Multi-system disorder, cardinal characteristics:

- Cardiomyopathy (weak heart)
- Neutropenia (weak immune system)
- Underdeveloped skeletal musculature and muscle weakness
- Growth delay
- Exercise intolerance
- 3-methylglutaconic aciduria
- Cardiolipin abnormalities

Further information www.barthsyndrome.org, www.barthsyndrome.org.uk

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Ethereality examples
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