The Change Equation
and the underlying socio-technology themes behind INPACT

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The Imaginist Company
This evening’s seminar

- Introducing ‘The Change Equation’
- Setting the context: INPACT and Socio-technical principles
- Why do projects fail?
- Organisational Capability
  - Organisational Culture
  - Process Capability
- Complexity
- Putting it all together – the INPACT Assessment
- Summary: INPACT and Socio-technical principles
Introducing ‘The Change Equation’

- ‘The Change Equation’ shows you how to take two models:
  - the Organisational Culture Evolution spiral
  - the Business Process Capability ladder
- …and combine them to provide a baseline:
  the Organisational Capability Indicator
- It then shows you how to assess the complexity and risks of a change project
- By analysing and quantifying the gap between Organisational Capability and Project Complexity, you can predict the likely success or failure of a change project
Setting the context: INPACT and Socio-technical principles

- A work system has two aspects (*Bostrom and Heinen*):
  - the SOCIAL system, which includes the people and how they fit into the structure of the Organisation

![Diagram of work system with SOCIAL and TECHNICAL aspects](attachment:image.png)
Setting the context: **INPACT** and Socio-technical principles

A work system has two aspects (*Bostrom and Heinen*):

- the SOCIAL system, which includes the people and how they fit into the structure of the Organisation
- the TECHNICAL system, which includes the IT and automated processes, and Tasks they perform
“Successful organizational performance depends on good interaction between the social and technical systems. Paying attention to either system on its own will create problems and barriers to success”  

*Bostrom and Heinen*
Setting the context: **INPACT** and Socio-technical principles

- An underlying principle behind the **INPACT** Assessment methodology is the recognition of the inherent tension between people, their aspirations and motivations (SOCIAL), and the Organisation and its demands and constraints.

- The success of an organisation depends on achieving a balance/alignment between these.
My contention is that:

- The success or failure of a change project can be predicted by looking at the **complexity** of the Task, in the context of the organisation’s culture (SOCIAL) and process management (TECHNICAL) capability.
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- The success or failure of a change project can be predicted by looking at the complexity of the Task in the context of the organisation’s **culture** (SOCIAL) and **process** management (TECHNICAL) capability.
In order to predict project success or failure I needed to find ways to measure Project Complexity and Organisational Culture – then I could analyse the gap.

**INPACT**

**Integrated Process and Culture Transformation**
In order to predict project success or failure I needed to find ways to measure Project Complexity and Organisational Culture – then I could analyse the gap.

STEP 1: Map the culture of the organisation, using Warren Kinston’s Culture Evolution Model.
Setting the context: **INPACT** and Socio-technical principles

**STEP 1:** Map the culture of the organisation, using Warren Kinston’s Culture Evolution Model

**STEP 2:** Assess the **process** management capability, using SEI’s Process Capability Maturity Model (CMM)
Setting the context:

**INPACT** and Socio-technical principles

STEP 3: Assess the **complexity** of the task, relative to the capability of the organisation

The more complex a project, the more important it is that the organisation has the capability to cope with it.
Setting the context: INPACT and Socio-technical principles

STEP 3: Assess the complexity of the task, relative to the capability of the organisation

The more complex a project, the more important it is that the organisation has the capability to cope with it.
Introducing ‘The Change Equation’

- The journey:
  1971 - 1990   BT
  1991 - 2002   BuyIT best practice group
  2003          The Imaginist Company
  2003 - 2006   National e-Procurement Project
  2006 - 2009   Change Management projects
  2007 - 2008   Development of **INPACT**
  2009          Publication of ‘The Change Equation’

“A route-map for senior managers to de-risk their IT-based change projects and improve the returns on their investment in modernisation and performance improvement”
The challenge

- Why do so many projects fail to deliver the full benefits?
- What could I do about it?
Why do change projects fail to deliver?

- Here are some of the reasons we all know about:
  - a focus on the technology instead of the business benefits
  - poor specification of the system and lack of due diligence on supplier capability
  - failure to gain senior management championship
  - inadequate resources
  - poor project management
  - lack of user involvement

- But if we all know about the reasons, why are change projects still going wrong so often?
Only about 30% of change projects are successful

Standish Group annual survey 2009 confirms that:

- Only **32%** of projects deliver the full benefits, on time and within budget
- **44%** of projects are late, over budget and deliver less than the expected benefits
- **24%** fail completely and are abandoned before they finish!
More evidence of the same trend

- The Harvard Business School tracked the impact of change efforts among the Fortune 100 and they also found that only 30% produced a positive bottom-line improvement...

- A recent survey of change programmes in <400 European organisations quoted by Prof. John Oakland, Emeritus Professor, Leeds University Business School found that:
  - 90% of change programmes faced major implementation problems
  - Only 30% delivered measurable business improvements
More evidence of the same trend -2

- Management consultant PricewaterhouseCoopers (March 2007) claim that:
  - 25% of IT projects succeed
  - 25% fail and
  - 50% are late or over budget

- A CIPD survey of 800 executives found that reorganisations failed to deliver real improvement in performance in 40% of cases

Why do so many change projects fail to deliver?
It turns out that success rests as much on the capability of the people in the organisation to cope with change and take advantage of new systems, as on how well the project was planned and implemented.

- “85% of project success is dependent on factors related to people”
  
  John McKean, Executive Director, Center for Information Based Competition, Ohio

- “Even amongst successful implementations, 47% of companies reported serious challenges with end-user adoption that often put projects in jeopardy”
  
  AMR Research

- “Companies that spend less than 17% of ERP implementation budgets on training put their projects at increased risk of failure”
  
  Gartner
Organisational Culture

- “Organizations that concentrate on the technological aspects of ERP [Enterprise Reporting Planning systems] and ignore the "softer" components of implementation often fail. ERP is about people, not just technology, and organizations that ignore the people side run a significant risk of project failure.”
  
  *Gartner report: Five Key Factors for Successful ERP Implementations, 2006*

- “The variability in the outcomes of various organisational change initiatives can be explained by the extent to which an organisation-wide commitment is present”
  
  *Kinnie, 1995*

- “Poor User Adoption Increasing UK IT Project Failures, costing UK estimated £5.81 billion per year”
  
  *Knowledge Solutions Press Notice 4 June 2007*
Organisational Culture

- “There is little success in the practice of change initiatives mainly due to the difficulty of changing the basic ways of thinking within the organisation”
  
  Senge, 1999

- “A usual barrier to change initiatives was the poor vertical and horizontal communication across the organisation”

  Soltani & Lai, 2007

- “Each of the functional heads wants their piece of the pie and nobody wants to spend on someone else’s need to have data from their world. They aren’t focused on what’s good for the whole.”

  CIO healthcare provider: Forrester, 2005

- “Everything has historically been functionally aligned and the old culture of fiefdoms is still present. It’s also hard to get people to understand and accept change.”

  CIO, travel industry: Forrester, 2005
Assessing Organisational Culture
Assessing Organisational Culture

- There is an underlying tension between the individual and the organisation.
- Successful change needs an integrated approach encompassing people and process in a balanced approach.

**Organisation ‘External’ Focus:**
- The organisation’s needs and direction
- Systems and processes
- Efficiency

**The Individual ‘Internal’ Focus:**
- Culture
- People’s perceptions, attitudes, motivations, aspirations
- Effectiveness
Assessing Organisational Culture

- Imagine the pendulum swinging and rising at the same time…

**ORGANISATION**
‘External’ Focus:
- The organisation’s needs and direction
- Systems and processes
- Efficiency

**THE INDIVIDUAL**
‘Internal’ Focus:
- Culture
- People’s perceptions, attitudes, motivations, aspirations
- Effectiveness
That gives us the Culture Evolution Model

It allows us to identify the predominant organisational culture

Each point on the spiral represents a separate, definable culture

Each culture builds upon the earlier ones, progressing up the spiral

This model indicates how well the organisation will cope with change
The Organisational Culture model: Level 1

1. Pragmatist/Anarchic
The Organisational Culture model: Level 2

1. Pragmatist/Anarchic
2. Structuralist

Structuralist — Pragmatist/Anarchic
The Organisational Culture model: Level 3
The Organisational Culture model: Level 3

1. Pragmatist/Anarchic
2. Structuralist
3. Dialectic
The Organisational Culture model: Level 4

1. Pragmatist/Anarchic
2. Structuralist
3. Dialectic
4. Aligned
The Organisational Culture model: Level 5
The Organisational Culture model: Level 6

1. Pragmatist/Anarchic
2. Structuralist
3. Dialectic
4. Aligned
5. Pragmatist/Aligned
6. Empiricist
The Organisational Culture model: Level 7

- 1. Pragmatist/Anarchic
- 2. Structuralist
- 3. Dialectic
- 4. Aligned
- 5. Pragmatist/Aligned
- 6. Empiricist
- 7. Imaginist
The Organisational Culture model: Level 8
The Organisational Culture model: Level 9

1. Pragmatist/Anarchic
2. Structuralist
3. Dialectic
4. Aligned
5. Pragmatist/Aligned
6. Empiricist
7. Imaginist
8. Systemist

Level 9: Pragmatist/Empowered
The Organisational Culture model

EXTERNAL AXIS (Organisation)

INTERNAL AXIS (Individual)
Assessing Organisational Culture

“The goal of sociotechnical design is to produce a system capable of self-modification, of adapting to change, and of making the most of creative capacities of the individual for the benefit of the organisation” *Elayne Coakes*

- What are the conditions you need in order to tap into an individual’s creativity? I would argue that they include:
  - An environment of trust and empowerment
  - Confidence in one’s own identity and role in the organisation
  - An infrastructure that encourages and rewards sharing and innovation
- So wouldn’t it be useful if we could measure the level of trust in an organisation?
- We can!
Measuring levels of trust

- There are 3 dimensions of trust in an organisation

  Dimension 1: Relationship with my manager

  Dimension 2: Relationship with my staff

  Dimension 3: Relationship with my peers
Measuring levels of trust

- We ask 3 questions:
  1. How far do you trust your boss to represent your interests, consult you when necessary and keep you fully informed?
  2. How far do you trust your staff to work without your keeping an eye on them?
  3. How far do you trust your colleagues to share accurate information and keep you informed about changes that might affect you?

- Score each of these on a scale where:
  0 = not at all, 1 = not sure, 2 = mostly, 3 = totally

- Add these up (max 9) and convert into %, eg 3/9 = 33%
- Take that away from 100, so 33 – 100 = 67%
  - and that’s your Distrust Factor
Measuring levels of trust

The higher the levels of distrust, the more time and effort the project will require and the higher the cost, so add 67% to planned time and cost.

Levels of trust are poor, relationships difficult
= Slow or no change
= Costs go up = **FAILURE**

People trust each other, relationships are good
= Speedy change
= Low cost = **SUCCESS**
Assessing Process Management

ORGANISATIONAL CAPABILITY

Culture  £  Process

THE PROJECT
We use the Process Capability Maturity Model (CMM) to assess the organisation’s process capability – the discipline and consistency with which processes are managed.

Organisations with aspects of their operation at levels 1 and 2 will find it difficult to introduce standard systems and processes.
Combining these two assessments gives us a high level indication of the Organisational Capability. That allows us to assess the organisation’s capability to manage change and take advantage of modernisation and transformation projects.
Assessing Project Complexity

ORGANISATIONAL CAPABILITY

Culture

£

Process

THE PROJECT
Remember:

STEP 3: Assess the **complexity** of the task, relative to the capability of the organisation

The more complex a project, the more important it is that the organisation has the capability to cope with it.
Let’s look at some examples of failed projects to understand complexity better
Terminal 5

“The Terminal 5 debacle is a national disgrace”
Daily Mail, 14 April 2008
So what went wrong?

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Shortage of staff car parking spaces</td>
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<td>2.</td>
<td>Only one employee security checkpoint operating</td>
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<td>3.</td>
<td>Some staff unable to log on to the computer system</td>
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<td>4.</td>
<td>Hand-held communication software running slow</td>
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<tr>
<td>5.</td>
<td>No managers on the ground to re-allocate work</td>
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<td>6.</td>
<td>Shortage of bar-reading storage bins</td>
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</table>

- **The result:** Over 28,000 lost bags, 700 cancelled planes and more than 150,000 disrupted passengers
C-Nomis

- **2004:** HM Prison Service commissions C-NOMIS to give prison and probation officers real-time access to offenders’ records
- **June 2005:** the approved lifetime cost of the project is quoted as **£234m**
- **March 2007:** Home Secretary John Reid: “the main C-NOMIS base release, encompassing full prison and probation functionality, will be available no later than July 2008”
- **July 2007:** £155m has been spent, C-NOMIS is two years behind schedule; estimated lifetime project costs are now **£690m**. The Ministry of Justice suspends the project
What went wrong?

- National Audit Office report:
  - The project board accepted assurances that the project was “all going well”; nobody knew what was being delivered for the money being spent
  - There were insufficient resources and structures in place to deliver such a complex project
  - Over time policy developed and stakeholder requirements changed, but there was no cumulative view of the impact of change requests on costs and timescales
  - No resources were allocated to simplifying and standardising business processes across the 139 prisons and 42 probation areas, each of which had their own ways of working

The Commons Public Accounts Committee report verdict:
“a spectacular failure – in a class of its own”
The London Ambulance Service Computer-Aided Despatch (CAD) System

- October 26, 1992: the London Ambulance Service CAD system goes live – and fails
- 46 people don’t get an ambulance in time and DIE!
What went wrong?

The collapse went like this:

- Poorly trained staff did not update system with location and status of units
- The increasingly out-of-date database meant units were being despatched non-optimally and multiple units were being sent to the same calls
- A software bug generated a large number of exception messages – and un-responded exception messages generated repeat messages…
- Lists scrolled off the top of the screens and were lost
- The public repeated un-responded calls, adding to the chaos
What went wrong?

- The system ground to halt:
  - One ambulance arrived to find the patient dead and taken away by undertakers
  - Another ambulance answered a 'stroke' call after 11 hours, and 5 hours after the patient had made their own way to hospital
- CAD system was partly disabled, but this part-manual system seized up completely
- Operators had to revert to a totally manual system
- 29 October 2002: Chief executive resigns
LAS: Some conclusions

- National Audit office report:
  - “The small software error was the straw that broke the camel's back, but the responsibility for the LAS's CAD system failure does not lie solely on the single developer who made the error or even the developing organization to which he belonged.
  - Rather, the attitudes of key LAS members toward the project and the unreasonable restraints they placed on the project allowed the failure to occur.”

- The lesson?
  - “In real applications there is a collision of social, human & technical systems”

- That was 1992
- HAVE WE LEARNED THE LESSON?
Projects don’t just fail in the public sector!

- **HP**
  - In 2004, HP's project managers knew all of the things that could go wrong with their ERP centralisation programme. But they just didn't plan for so many of them to happen at once.
  - The project eventually cost HP $160 million in order backlogs and lost revenue—more than five times the project's estimated cost.
  - Gilles Bouchard, then-CIO of HP's global operations, says: "We had a series of small problems, none of which individually would have been too much to handle. But together they created the perfect storm."

- There’s a clue in there, somewhere…
Have you got it?

Project Complexity is EXPONENTIAL!
We are surrounded by exponentiality, but we do not act as if we understand it

For example, compound interest:

- "Scientists have developed a powerful new weapon that destroys people but leaves buildings standing – it's called the 17% interest rate.”  
  
  *Johnny Carson, The Tonight Show, 1980*

- All that we had borrowed up to 1985 was around $5 billion, and we have paid about $16 billion; yet we are still being told that we owe about $28 billion. If you ask me what is the worst thing in the world, I will say it is compound interest.

  *President Obasanjo of Nigeria, 2000*
Complexity is EXPONENTIAL

- Population growth is growing at an exponential rate:

  ![Graph showing exponential population growth]

  You are here! (6,792,142,533)

- ...and consumption of resources is following close behind, so our energy usage is depleting the world’s natural resources exponentially
Complexity is EXPONENTIAL

- And climate change is also following an exponential runaway profile
Why don’t we understand exponentiality?

- "The greatest shortcoming of the human race is our inability to understand the exponential function. We live in a world that can change exponentially – but we have brains that are hardwired to plot things out linearly - the software in our brains compels us to think about progressions as being simple arithmetic ones. So as a species, and a society, we deal poorly with uncertainty in non-linear domains.”
  
  Prof Albert Bartlett, emeritus Professor of Physics, University of Colorado

- As a consequence of this, the complexity of a project is usually UNDERESTIMATED
Managing Exponential Complexity

- If complexity is exponential, we only need 3 factors to build an exponential scale:
  - \( X \times Y \times Z \)

- That won’t represent all the risks, but if we select the right factors, it will give us a good indicator

- So what are our 3 factors?
Assessing Project Complexity

- Which 3 factors?
- They must be:
  - Common to all projects
  - Quantifiable (at least to a good approximation) by stakeholders
  - Sufficiently powerful in combination to lead to an accurate assessment of the complexity of a project

The Exponential Complexity Tool uses:

1. No of Stakeholders
2. No of Processes affected
3. Time to implement (in months)
Assessing Project Complexity

<table>
<thead>
<tr>
<th>S: the number of Stakeholders involved</th>
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<tr>
<td>An approximation might be: everyone represented on steering and project groups (plus some ‘invisible’ stakeholders you may not have included!)</td>
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<table>
<thead>
<tr>
<th>P: the number of business activities or Processes that will be affected</th>
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<tr>
<td>For example the number of manual processes an automation project will ‘touch’ and change</td>
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<table>
<thead>
<tr>
<th>T: the expected implementation Timescale</th>
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<tr>
<td>In months, from award of contract to planned completion of roll-out</td>
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- There may be a lot of other factors that will contribute to the overall project risk, but this will give us a high-level indication of whether the complexity of the project was underestimated.
The Exponential Complexity Model

- Where do you think your project lies on this scale?
- Now do the numbers…
- What did you find?

S = Stakeholders x P = Processes x T = Time (in months)
Combining Capability and Complexity

- We put these results into the context of the project’s complexity status to show the relative complexity of the project - the gap between the organisation’s capability and that required to manage the project and cope with the changes it requires people to make.

- The project looks as if it’s within your capability
- This project is at risk of not realising expected benefits
- This project is not within your organisation’s capability
### Putting it all together: The INPACT Assessment

- This is where we calculate the potential impact of all these indicators on the business case.
- We consider the status of each of the elements identified in the assessment and calculate the impact on costs or benefits.
- This gives us an overall impact on the project’s bottom line.
- And that’s what senior managers understand!

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<thead>
<tr>
<th>Component</th>
<th>Status</th>
<th>Potential Impact</th>
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<tr>
<td></td>
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<td>Time/Cost +%</td>
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<td></td>
<td></td>
<td>Benefits -%</td>
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<td>ORGANISATION</td>
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<td>1 Management Culture</td>
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<td>2 Capability Maturity</td>
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<td>Capability Impact estimated at:</td>
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<tr>
<td>PROJECT</td>
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<tr>
<td>3 Clarity of objectives</td>
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<td>4 Complexity of project</td>
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<td>Project Impact estimated at:</td>
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<tr>
<td>DELIVERY OF PROJECT</td>
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<td>5 Visibility of process</td>
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<td>6 Distrust factor</td>
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<td>7 Benefits Realisation</td>
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<td>Delivery of Project Impact est. at:</td>
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<td>OTHER FACTORS</td>
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<td>8 Relationship with suppliers</td>
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<td>9 IT Solution</td>
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<tr>
<td>Other factors impact estimated at:</td>
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<tr>
<td>Total potential impact on project timescales/costs</td>
<td>+ %</td>
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<td>Total potential impact on benefits</td>
<td>- %</td>
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We develop an Action Plan to overcome the barriers, mitigate the risks and help clients plan for success

<table>
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<th>Organisation</th>
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<tr>
<td>Component</td>
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<td>Management Culture</td>
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<td>Process Capability</td>
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Using the Culture Evolution model, we develop a Route-Map to improve the organisation’s capability for change

We ask two questions:

- *If you are here now, where do you need to be?*
- *What will happen if you don’t change?*

The first question identifies what needs to change

The second gives you the ammunition you might need to defend the change – it describes the future if you stay where you are

The more mature the management culture, the better the organisation will adapt and respond to change
Summary:
**INPACT** and Socio-technical principles

- INPACT
- Social Culture
- Technical Process

**Systemist**
- Imaginist
- Pragmatist/Anarchic
- Structuralist

- **Pragmatist/Aligned**
- **Pragmatist/Empowered**

**EXTERNAL FOCUS (Organisation)**

**INTERNAL FOCUS (Individual)**

**COMPLEXITY**

- Initial
  - Ad hoc process
  - Chaotic

- Repeatable
  - Stable process
  - Controlled environment

- Defined
  - Standard process
  - Consistent Execution

- Managed
  - Measured process
  - Quality and Productive Improvement

- Optimised
  - Effective process
  - Continuing Improvement

**ORGANISATIONAL CAPABILITY**

- Software Engineering Institute

- Complex project – needs dedicated project team
- Beyond this point your project is too complex – break it down into smaller projects and employ a skilled programme manager

**Not simple – needs experienced project management**

**Simple project – needs some project management**
The Imaginist Company is applying the INPACT principles in its consultancy work. The promise to our clients is:

- “Within days, we can predict the success or failure of your change project, help you to gain ownership of the risks and provide you a route map and action plan to address them”
- If you have a project that is being planned, or being implemented and you are worried that it is at risk of not succeeding, please contact us
- If you are a consultant and you have the opportunity to refer us to suitable clients, we are offering a revenue share arrangement – do contact us for more details

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