



Innovation Minded Enterprise Management

Enterprise^{SP}

***Identifying Risks and Opportunities where
innovation makes a difference, then handling
them with the Innovtion^{SP} protocol***

Gideon Samid, PhD, PE

Environment



- An enterprise situated in a societal setting in which it tries to thrive. E.g.: a capitalistic competitive environment.
- At any moment the enterprise faces a list of opportunities to exploit, and an array of threats to defend against.
- Both threats and opportunities are “attention claimants” competing over the same pool of enterprise resources.

Two Challenges



- 1. How to allocate enterprise resources to best exploit the opportunities and best defend against the looming threats.
- 2. How to acquire more resources to better meet challenge (1)



Meeting 1st Challenge: Enterprise^{SP}

- 1. Build a comprehensive list of opportunities
- 2. Build a comprehensive list of threats
- 3. Rate items on both lists for significance
- 4. Rate items on both lists for urgency
- 5. Based on (3,4) determine planning target date
- 6. Rate Enterprise position if the enterprise continues inertia-based.
- 7. Plan a nominal response to the risks and opportunities.
- 8. Rate Enterprise position based on plan in (7).
- 9. Assess role for innovation.
- 10. If (9) positive, exercise Innovation^{SP}, otherwise execute (7).
- 11. Re-Exercise Enterprise^{SP} once arriving at target date (5)

Risk v. Opportunities



- At any point in time one faces a list of opportunities to upgrade their state of affairs, and also a list of threats positioned to degrade the same.
- The biggest challenge is to identify all major opportunities and all major threats. Otherwise any further rational strategy will be seriously suboptimal.
- The second challenge is to rank-order the identified threats by significance and urgency.
- Urgency rating determines planning schedule.
- Significance rating is to insure that the enterprise don't pay too much attention to secondary items, and too little to major ones.
- Since both threats and opportunities draw from the same pool of resources, they must be cross-ranked for any rational strategy.

Opportunities



- Emerge from technological improvements, organizational improvement, environmental changes.
- Identified Opportunity must first be defined to a degree that would allow one to estimate:
- ***Reward if Materialized***
- ***Inertia Base Chance to Materialize***

Reward if Materialized



- Most conveniently measured in monetary terms.
- Can be measured in success grading (*success/failure; high-position, medium-position, low-position*)
- Rewards metrics must be the same across the opportunities and preferably across the threats.
- Reward of Opportunity measures the added-value compared to this opportunity not being realized.

Inertia-Base Chance to Materialize



- Estimate the chance for the identified opportunity to materialize, given that the enterprise continues business as if this opportunity was not recognized and not specifically responded to.
- Estimation methodologies: (i) The Innovation Turing Machine, (ii) BiPSA

The Value of an Opportunity



- An opportunity of reward R , and chance to happen P has a value, V :

$$V = P * R$$

- n Identified opportunities, may be rank-ordered by their values:

$$V1 \geq V2 \dots \geq Vn$$

- The expected sum value of the canvas of opportunities is:

$$V_0 = V1 + V2 + \dots + Vn$$

Threats



- Threats may spring from technological performance deterioration, or from changes in external circumstances.
- Threats driven by adversarial intent are usually well hidden, and likely to be overlooked. If they are major, the consequences may be dire.
- Identified threats must be defined in sufficient specificity to allow one to define:
 - *Damage if Materialized*
 - *Inertia-Base chance to Materialize*

Damage if Materialized



- Estimate the chance for the identified threat to materialize, given that the enterprise continues business as if this threat did not present itself.
- Estimation methodologies: (i) The Innovation Turing Machine, (ii) BiPSA

Inertia-Base Chance to Materialize



- Estimate the chance for the identified threat to materialize, given that the enterprise continues business as if this threat did not present itself.
- Estimation methodologies: (i) The Innovation Turing Machine, (ii) BiPSA

The Measure of a Threat



- A threat of estimated damage D , and chance to happen P has a threat measure M :

$$M = P * D$$

- m Identified threats, may be rank-ordered by their values:

$$M1 \geq M2 \dots \geq Mm$$

- The expected sum value of the canvas of threats is:

$$M_0 = M1 + M2 + \dots + Mm$$

Global Risk and Opportunities



- The total value of the inertia based situation is the sum value of the opportunities, V_0 , minus the sum values of the threats, M_0

$$U_0 = V_0 - M_0$$

- If measured in dollars U_0 will represent the net financial benefit to the enterprise over the analyzed period.
- U_0 may be positive, or negative reflecting the balance between risks and opportunities.

Resource Allocation



- Allocatable Resources in quantity Q are to be allocated to the $(n+m)$ resource claimants:

$$Q = q_1 + q_2 + \dots + q_{(n+m)}$$

- So as to best improve the state of the enterprise: exploit the opportunities, and minimize the threats.
- The challenge is to optimally allocate Q among the $(n+m)$ claimants.

m)

Balanced Resource Allocation



- We regard the n opportunities, and the m threats as unified claimants $U_1, U_2, \dots, U_{(n+m)}$, ranked by order:

$$U_1 \geq U_2 \dots \geq U_{(n+m)}$$

- Q is then parceled out to match resources to claims. Namely, to satisfy:

$$q_i / q_j = U_i / U_j \text{ for any } i \neq j; i, j = 1, 2, \dots, (n+m)$$

Imbalanced Resource Allocation



- Most common due to:
 - 1. 'Latest Effect'
 - 2. 'Super-Size' Effect
 - 3. 'Convenience' Effect
 - 4. 'Threat/Opportunity Attitude' Effect
 - 5. 'Skewed Claim Values' Effect
- And of course, the most impactful imbalance is due to not recognizing a looming opportunity, or menacing threat.

‘Latest Effect’



- People tend to be overly impressed with the latest news, and give them more than their due attention. A new opportunity engenders great excitement, and a newly recognized threat stirs deep fear.
- Even a partial and fuzzy application of the Innovation^{SP} methodology will reduce the imbalance.

Super Size Effect



- Looming threats or opportunities tend to suck the 'oxygen' and choke lesser items, which in aggregate may count more than the single large item.
- Under stress people seek simplicity, focus on the largest item and ignore the rest. Applying this Innovation^{SP} methodology will harness this imbalance.

Convenience Effect



- People tend to try to solve challenges they are familiar with, finding excuses to ignore greater challenges that require a learning curve and familiarization effort.
- Even a partial and fuzzy application of the Innovation^{SP} methodology will reduce this imbalance.

Threat/Opportunity Attitude Effect



- Risk averse people will overplay threat attention claimants
- Risk takers people will overplay opportunity attention claimants.
- Even a partial and fuzzy application of the Innovation^{SP} methodology will reduce the imbalance.

Skewed Claim Values Effect



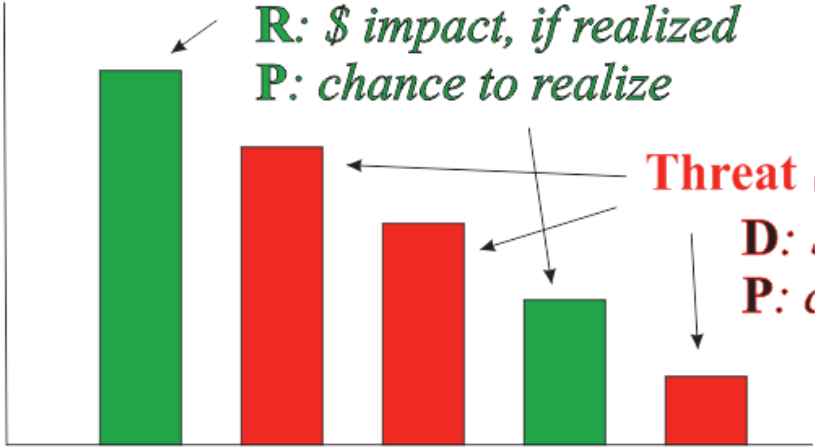
- Damage and Reward figures may be grossly inaccurate, but more questionable are the likelihood numbers. Bias can easily affect them, and in that case no rigorous application of the Innovation^{SP} methodology will correct it.
- The more fuzzy the case, the greater the advantage of replacing fixed values with matching probability curves to fit into a Monte Carlo analysis.

Allocation Strategy



Opportunity (\$): $O=P*R$

R: \$ impact, if realized
P: chance to realize



Threat (\$): $T=P*D$

D: \$ damage, if realized
P: chance to realize



*Co-Ranking
of Threats and
Opportunities
to Optimize
Attention
Allocation*



Nominal Planning

- The allocated resources for each claimant should be used in part to devise best response plan to be carried out by the balance of the allocated resources.
- The (n+m) response plans will be appraised per the resulting increased reward, or decreased damage from exercising the plan, and the chance for the plan to succeed.
- This will result in (n+m) values $U'_1, U'_2, \dots, U'_{(n+m)}$
- Compute $\Delta U_i = U'_i - U_i$ for $i= 1,2, \dots, (n+m)$
- The sum value according to the nominal planning, U'_0 is computed as

$$U'_0 = V'_0 - M'_0$$

Nominal Plan Impact Ranking



- Rank the (n+m) resource claimants according to the impact of the plan on their measure:

$$\Delta U_1 \geq \Delta U_2 \geq \dots \Delta U_{(n+m)}$$

- This will order the claimants according to items where a difference can be made – regardless of the magnitude of the reward or the damage.

Cross Ranking



For each claimant i find their ranking i' in the inertia-base ranking, and their ranking i'' in the impact base ranking, and compute:

$$I_i = i'' - i'$$

Rank the $(n+m)$ claimants according to the computed Innovation Focus Index I_i .

Compute Response Imbalance Index (RII):

$$RRI = 1/(n+m) * \sum |i'' - i'| \text{ for } i=1,2,\dots,(n+m)$$

Response Imbalance Index



- A high response imbalance index indicates that:
- High value claimants appear to be subject to limited enterprising impact, and/or
- Low value claimants appear to be subject to high enterprising impact

Identifying Innovation Candidates



- Resource claimants with a high Response Impact Index (RII) are attractive candidates to become Innovation Challenge-in-Focus (ICiF).
- They are important claimants for which without innovation there is no good way to impact them – although impact is very desirable.

Apply the ITM to most attractive ICiF candidates



- Claimants with significant value, for which no effective intervention is apparent are assigned as IC in focus.
- The Innovation Turing Machine is applied to these claimants, resulting in a formal innovation plan leading to new estimates of reward or damage if materialized, and chance to materialize

Comparison of States



- The sum values of the situation can be compared as to inertia-based, nominal-plan outcome, and innovation impact plan:

$$U_0 \rightarrow U'_0 \rightarrow U''_0$$

- To assess how good is our solution protocol.

Meeting Challenge #2

Acquiring Resources



- Re-apply Innovation^{SP}, assuming additional amount of resources ΔQ is available.
- Compute the impact of ΔQ on the united value of the enterprise at the target date, U_0'''' .
- Based on the relationship between ΔQ and $(U_0''''-U_0''')$, shop for ΔQ through budget allocation, through credit, or through equity sharing, as the case may be.

Implementation

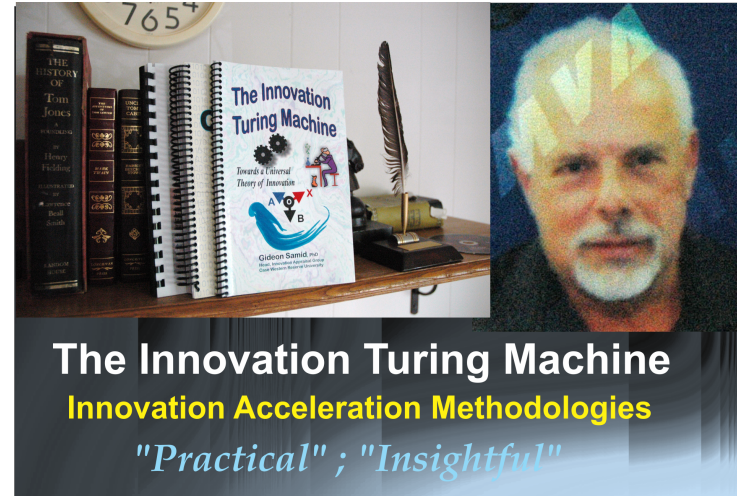


- The described Enterprise Solution Protocol (Enterprise^{SP}) is quite a demanding framework as it is.
- Rigorous implementation will require extensive use of Monte Carlo technique.
- Enterprise^{SP} has proven to be useful even when loosely applied. It serves as 'check-list guidance' to enterprise management.

Further Interest



- Prof. Gideon Samid offers tailored webinars, seminars, and workshops either in academic setting (Case Western Reserve University) or in corporate setting (D&G Sciences – Innovation Productivity Corporation).
- D&G Sciences – Innovation Productivity Corporation helps enterprises set up their Enterprise^{SP} (Solution Protocol), and their Innovation^{SP} team.



Gideon Samid, President
D&G Sciences – Innovation Productivity Corporation
P.O.Box 1022, McLean, VA 22101, USA
gideon@DGSGo.com
+1 571 214 9814