

Entrepreneurial E-Business Development: Mercenary Risk Theory

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Abstract: - This paper intends to establish a framework for entrepreneurial decision making processes for businesses, in particular e-businesses, by introducing the Mercenary Risk Theory (MRT). MRT challenges each element of best practice, allowing under-resourced projects to be completed. We provide examples of how MRT could be applied to resourcing software development, especially overheads and human resources, and the management of the alpha and beta product development phases. We also provide the case of SpaceShipOne, an 'extreme' MRT case.

Key-Words: - risk management, entrepreneurial e-business development, software development, decision making

1 Introduction

'A long time ago in a galaxy far, far away'... when Princess Leia is being held on the Death Star, Luke Skywalker, the future Jedi Knight, tells Han Solo, a mercenary smuggler, that they must rescue the princess [1]. Solo simply asks: "why?" Realizing that Solo has no morals, Skywalker tells him that he will be rewarded: "she has more money that you can imagine". Solo's reply is characteristic of his personality: "I don't know kid; I can imagine an awful lot". In this analogy, Skywalker represents established credible businesses that follow best practice and maintain good brand image. On the other hand, Solo represents the entrepreneur with no such restrictions whose primary focus is 'profiteering' (even though money is not always the main motivation for entrepreneurs[2], their ventures have to make profit to survive and grow).

Credible businesses often face this dilemma: do they protect existing assets, such as continuity of trading, profitability and maintenance of good brand name by minimizing risks or become 'more entrepreneurial' taking more aggressive stance towards opportunity and risk management? Entrepreneurs, whilst accepting higher levels of risk still need to manage the risk and reduce the potential loss.

In a study by Mullins and Forlani [3], entrepreneurs were found to make relatively risk-averse choices, preferring to "miss the boat than sink it". Whether or not the boat sinks, entrepreneurs see businesses as 'vehicles of achievement': if one fails, they will try another one. Landstrom [4], studying informal investors as entrepreneurs, found that his responders had started, on average, seven firms each.

Each of these start ups has its own implicit risks: "because financial failure has a negative impact on self-image, a psychological component must also be included when the entrepreneurs place a measurement on risk" [5]. Still, although, self-image and potential risk to self-image are very important, one could argue that failure and risk of failure are part of the entrepreneurial process. If everyone was to be successful, then everyone would have been an entrepreneur!

This paper intends to establish a framework for entrepreneurial decision-making processes for businesses, in particular e-businesses, by introducing the Mercenary Risk Theory (MRT). MRT challenges each element of best practice, ultimately reducing the potential loss, i.e. the 'size of the boat'.

In the aforementioned study by Mullins and Forlani, risk is studied within the context of new

venture creation, which is consistent with the view that the entrepreneurs are those who establish businesses [6]. However, in the context of this study, when referring to entrepreneurs we will be also referring to managers of newly created businesses.

2 Mercenary Risk Theory

Innovative e-businesses generally require significant software development, which is the kernel of the business itself. For an e-business the development of the software must be closely linked to the overall business strategy and operations, and as a result development risk will translate to overall business risk. This is of critical importance when it comes to under-resourced e-business start ups, as resources need to be focused on the software development. MRT challenges the justification of best practices on a purely financial basis, so as to redirect resources to business critical operations. Best practice can only be justified, if the following formula supports it:

$$\text{Cost of Best Practice} < \text{Potential Loss} \times \text{Risk}(\%)$$

In the formula above 'Potential Loss' is the total cost of failure, 'Risk' is the percentage chance of the failure occurring and 'Cost of Best Practice' is the cost to prevent the failure by implementing best practice solutions. MRT effectively commoditises all aspects of a business; even the customer has a value with the loss or gain of a customer having a recognized financial impact. As the term mercenary implies a lack of principles, in MRT other business concepts such as credibility, reputation, prestige and good name can potentially be ignored.

To put MRT into context let us consider the following example. Best practice normally dictates the implementation of infrastructure resilience to ensure consistent operation of the IT systems. This usually involves installing a replica of the system in a different data centre, so that in the event of the first system failing for any reason, the second system could be used. MRT challenges this best practice by asking whether adding resilience can be financially justified.

In the case of a start up this investment is not justified, as the financial loss will be limited, due to the small number of clients. Also, the company has little credibility in the market place to lose. On the other hand, for established business, MRT justifies best practice because financial loss will be greater and such failure would significantly damage the company's good name. In our example, if resilience

results in doubling the costs of the infrastructure needed, for example £10,000, and the perceived risk of failure was 10%, the formula would dictate that to justify diverting resources and adding resilience the loss must be in excess of £100,000.

The above example does not intend to imply that MRT is an exact science. In fact, in most cases, it would be impossible to quantify the values at stake. For example, although the time needed to restore the system can be quantified, this does not apply to the damage to the firm's reputation for their system being out of operation. This does not imply that the MRT formula intends to outline a strict framework for decision-making, as this would have meant redefining best practice. In contrast, MRT aims to encourage 'out-of-the-box' thinking. As e-businesses operate in a technology-based environment characterised by rapid technological change and globalisation, the ability to adapt, change and find new ways of meeting their aims is critical [7]. When environmental conditions place such intense demands on organisations an entrepreneurial approach to strategy may be vital for success [8].

Entrepreneurs must gather a greater variety of resources in constantly shifting order of importance in order to be successful, while a manager is likely to be engaged in activities that ensure the successful completion of a proscribed set of activities [9]. However, many important decisions about how to allocate resources are not made by optimising within given constraints. Rather, these decisions involve creative processes, in which the constraints themselves are determined by the entrepreneur [10], which is what MRT is attempting to do.

In addition, whilst MRT tends to argue for resistance to taking actions; it should not be confused with or become an excuse for lethargy. It aims to allow resources to be concentrated on the key areas of business development, especially for start ups, as "effort must be taken to ensure that resources are spent on the areas most critical to the firm's success" [11].

Finally, MRT is not a constant; decisions need to be regularly reviewed. This is reflected by the formula, as when the business grows the values in the formula will change and hence decision-making will be influenced accordingly, as illustrated by the example given above.

3 Applying Mercenary Risk Theory

In the sections following we will discuss how MRT can be applied to e-businesses by discussing the resourcing of software development, especially

when it comes to overheads and human resources, and the management of the alpha and beta product development phases.

Companies will need to “adopt innovative strategies that capitalize on both the power of the Internet and the changes in both traditional and electronic markets, if they are to achieve competitive advantage” [12]. For e-businesses the above are of critical importance, as they can help the business stand out at technical innovation. As Porter [13] argued the key question it is not whether you deploy an e-business to take advantage of Internet technologies but how you deploy these. MRT provides a framework for this deployment, which will of course vary from organisation to organisation and from case to case.

3.1 Software Development Funding

For under-resourced e-businesses or in cases in which entrepreneurs look to reduce risk, an attractive route for initial funding may be the sale of ‘Vapourware’. The company propose the concept to a customer, who then pays for the development of the product, resolving the venture’s funding issues.

This method is obviously extremely risky, as the product does not exist and technical challenges are difficult to assess. The product must be aggressively managed to ensure delivery even at the price of reduced scope and limited future proofing. MRT in this case challenges best practice, i.e. can a product’s proof of concept be cost justified? In this case, the cost of best practice is the cost of the proof of concept, the potential loss is the financial loss, if the product can not be developed to specification, and the risk is the chance of that happening.

The limited funding ensures that the product development dominates business planning and helps focus the management team. What is also of interest is that opportunities to sell Vapourware are often the trigger to launch a new business. Failure to find such opportunities will force the entrepreneur to either not launch the venture or select the ‘alternative’ traditional routes of funding.

3.2 Overheads & Micro-teams

Any sound business venture will attempt to reduce its overheads to a minimum. MRT extends this to cost justify each individual overhead. For example: is a receptionist required? Are fixed offices required?

In particular, when it comes to e-business start ups, initial IT infrastructure should be run at an absolute minimum. Any spending to provide for security, scalability and resilience must come later, when this is justified by the MRT formula.

Ultimately, lower overheads allow the venture to operate longer, all things being equal.

Personnel wages is a key cost, particularly in development organisations, which could alternatively look into building micro-teams of highly skilled and motivated individuals. Personnel should be engaged on profit sharing schemes or sub-contracted on fixed scope and price contracts. The resultant profit sharing micro-team will be inexpensive to maintain and far more agile [14]. They would also be more committed to the ‘cause’ and would be more likely to be willing to go the extra mile to make the venture successful. If the project is eventually successful, team members can then be rewarded accordingly, which puts considerably less stress on the venture as they are rewarded by the returns of their effort, instead of the capital itself.

3.3 Alpha Development

A key element of the initial development is ensuring that the team is agile, which is well provided for by the micro-team concept. This agility means that rapid development can occur, but at the same time the team has the confidence and flexibility to retract and follow a different route. Often, in development, initial decisions are continually reinforced and become more and more difficult to rescind. For example, primary decisions about which software and platform to use may transpire to be inappropriate. This is also extremely important for e-businesses that may often need to alter their initial product specifications, due to the unpredictability of the environment they are operating in.

Such lack of flexibility can be a significant contributor to project failure in large development teams. In the case of a micro-team everyone knows what everyone else is doing. Better communication among the team’s member can prevent poor decisions and save a lot of resources and time.

Methodologies are designed, in part, to hinder change and only allow such changes within a controlled environment; so as to ensure consistent deliverables across a large development team. MRT requires a significant re-evaluation of software development methodologies, as such methodologies inhibit rapid development. Each element of the methodology must have MRT added to evaluate whether the risk is sufficient to warrant its inclusion.

At the time the project becomes alpha status, it should immediately be taken live. MRT argues for the live testing of application by the customer base. Customers are seen as expendable resources and applying MRT the saved costs of development must

be offset against the expected number of lost customers.

In this more dynamic development process, the team should forcibly seek to build in a future-proof resilience, if possible. It may be better to build a more complex model that will be able to accommodate more functionality, rather than retro-engineering such functionality at a later date.

3.4 Beta Development

E-business solutions should be developed and tested in a live environment, thus reducing development costs and time. However, there is a significant risk that customers may be lost. As with alpha development, MRT commoditises the customer. As long as the cost of loss is less than the development savings, then MRT will argue for such an approach.

Whilst accepting customer losses, the process should still apply best practice tempered by MRT. MRT is not an excuse for lowering standards; it is a cost justification of those standards.

Development should be implemented and tested out of core business hours and roll back solutions should be maintained. Such an approach to development requires flexible teams of highly motivated individuals who are willing to put the effort in exchange for higher returns in the future, as mentioned in the previous section.

As the products matures and gains more users MRT argues for the progressive reintroduction of best practices, due to the increase of the potential loss.

4 Case studies

4.1 Gaia Fulfilment

Gaia Fulfilment (www.gaia-fulfilment.co.uk) had a vision to develop digital print solutions and make them available via the Internet. This required a significant amount of development time and resources. Typical of small and medium enterprises, the resources of the company did not match the vision. It was therefore decided to implement the development using MRT.

Before the project could begin, finance was required. This was achieved by building a demonstrable prototype. The 'Vapourware' solution, whilst based on sound development principles was not functional, nor did it prove the key elements of the solution. Still, it was enough to sign up the first customer, with the revenue generated forming the seed money for the project.

As there was no other funding available, to ensure the project could continue it was important to

generate revenue on an on-going basis from the very beginning. The product was therefore delivered rapidly, with a view to mature it over time. This was a relatively safe process as the product was limited to a single customer and therefore even significant software failures had only limited impact.

Once the product was stable, more customers were gradually brought online. However, there was still an ongoing requirement to develop the solution. As the company lacked the resources or manpower to deploy and test these developments off line, all developments were implemented live. To reduce the potential impact of these changes, work was done out of hours, usually between 21:00 and 02:00. The impact of each modification was assessed and special attention was given to track areas where issues may have occurred later. This often resulted in temporary issues on the following working day, which were then quickly resolved. The MRT approach obviously had a significant impact on the team who worked long hours through these periods.

As the system took on more and more users, these rapid modifications carried too much risk, but such significant changes became much less common, with generally only cosmetic modifications being required.

Whilst the development team had initially recognised the importance of MRT and implemented the more risky rapid development on the live system, to the more costly off line development and testing, Gaia did not have any other option.

As prescribed by MRT, there came a point when the cost of a potential failure had increased to such a degree that offline development and testing became more cost-effective. MRT helped Gaia go through a lengthy development phase, by reducing development and operational costs.

Gaia's software solution gained national recognition for innovation by being one of a handful of finalists at the 2004 eCommerce Awards organised by the UK Department of Trade and Industry (DTI) and attracted a SMART grant from the DTI in recognition of the ground breaking technology.

4.2 NASA vs. Burt Rutan

MRT can be applied to other types of businesses and ventures that have a technology focus. An example is that of Burt Rutan's efforts to win the X-Prize (www.xprize.com), a \$10m prize for flying to space twice in two weeks, compared to the traditional development of NASA's SCRAM Jet engines.

NASA spent \$230m on the SCRAM jet program [15], even though it was not clear where the technology would fit into NASA's future plans [16]. On the other hand, Burt Rutan with \$25m dollars investment built SpaceShipOne. He then went on to win the X-Prize, effectively getting almost half of the investment back. Most importantly, he signed a deal with Richard Branson and formed a new company: Virgin Galactic [17] to bring tourism into space.

Burt Rutan put man into space with a team of only 20, who worked on the space ship for months rather than years. A lot of the engineering that took place was very 'entrepreneurial' as they could not afford to do it 'the NASA way'.

Typical of the development team's approach to engineering was the hastily implemented engine cowling shortly before the second test flight [18]. The team were concerned about drag caused by the rocket cone. In order to reduce drag, a cowling was placed around the cone. With neither computer modelling, nor a specific test flight, SpaceShipOne was launched into space. The cowling succeeded in its job and SpaceShipOne gained greater velocity. However, the cowling crumbled under pressure, causing serious concerns though no significant consequences. MRT argues that because the design team did not consider the risk to be great they could not justify extensive testing. This certainly would have not been the case at NASA.

As Burt Rutan [19] said: "Our success proves without question that manned space flight does not require mammoth government expenditures". Indeed, they succeed, as stated in the press release [17] for the deal between Virgin Group and Mojave Aerospace, to make space affordable as the price for a seat to space dropped from \$15m to \$190k!

"It can be done by a small company operating with limited resources and a few dozen dedicated employees." [19] Such approaches are not uncommon in small firms. "Informal and incremental problem solving and experimentation are often used by small companies that do not have the resources and organisation to mount large R&D and human resources development programmes." [20]

5 Conclusion

In this paper we have provided examples of how MRT could be applied to resourcing of software development, especially overheads and human resources, and the management of the alpha and beta product development phases. We have also

provided the case of SpaceShipOne as an 'extreme' MRT case.

MRT enables best practice to be financially qualified which ultimately allows e-businesses to achieve developed products for significantly less resource. This in turn enables entrepreneurs to commit to a project with more assurity, as the financial loss is minimised. MRT can potentially be applied to any kind of decision-making that can be translated into a financial model. Many projects that would not have been viable due to lack of resource may become viable, by MRT justifying the exclusions of best practices and therefore reducing costs.

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