Management information from across the world making

Design, Photography

Management of technology has traditionally been seen as a linear model building up from research to production. In this report, we will analyze the framework of technology management given by M J Gregory in 1995 which proposes a process approach dividing the product life cycle into the five stages of Identification, Selection, Acquisition, Exploitation and Protection. We will examine the main activities in each stage and how those have evolved in the past decades.

The process of identification involves developing an awareness of all technologies which are or may be important to the business in the future (Gregory, 95). It involves a proactive approach by the firm in continuously scanning the horizon for emerging technologies which could be add value to the firm’s business proposition. The sources of identifying new technologies can be both internal to the firm such as utilizing in-house R or external to it such as industry conferences and networking events. A very important component here is ensuring proper communication between different divisions within the firm which may otherwise be in their own silos. Hence, a well-synchronised information management system is critical to ensure actionable insights from the information collection. Internet has massively democratized access to information from across the world making it much easier for firms to spot technological trends such as blockchains. Also rise of crowdfunding platforms such as Kickstarter enables firms to discover, evaluate and invest in creative application of technologies.

However it can sometimes be tough to filter out high quality information from the massive trove of data in the internet. Hence, it is imperative to

conduct due diligence before being carried away by the exuberance of the crowds or potential fake news items. The selection phase involves choosing the technologies to be supported and promoted within the organisation. (,).

It is a critical step as it involves committing precious resources of the firm to the most promising technologies. Not only is the opportunity cost high here, the decision may set the future trajectory for the firm. The classic example here is of Kodak: it failed to materialize on a technology it invented, digital photography, and completely missed the digital boom, ultimately having to file for bankruptcy(). Therefore it is essential for firms to have a framework for technology assessment and for evaluating them based on clearly laid out metrics – both qualitative and quantitative. Such benchmarking allows firms to clearly see the potential benefits as well as the risks associated with each technology. Successfully selecting new technologies also require the firm to look into the future, beyond their immediate considerations and engage in technological forecasting. Common methods for forecasting include scenario modelling, trend analysis and expert interviews.

Advances in and machine learning have led to novel yet highly effective approaches which can forecast technology trends from unstructured data using data mining and semantic learning ()According to Gregory, the process of acquisition involves the means of acquiring the selected technologies and embedding them effectively within the organization. Perhaps the most famous example of this is Microsoft’s acquisition of the original MS-DOS software from Tim Paterson for $75k (). Companies are always exploring avenues, both internal and external in the lookout for new technologies.

Internal processes include in-house R&D and knowledge absorption through organisational learning. Vehicles for external acquisition involve partnering, licensing or forming a joint-venture with other firms. Big technology firms have been able to exploit their massive surplus cash reserves to simply acquire a firm with technology of interest. As reflected in Figure 1, Oracle’s business strategy has been to enter the most profitable industry verticals in the business software by acquiring companies that have a dominant software in that industry. In recent years the concept of open innovation has seeped into mainstream management practices and has encouraged firms to incorporate external technologies and ideas into their firms ().

A great example of this is General Electric which embraced open innovation and launched FirstBuild dedicated to designing, engineering, building, and selling the next generation of major home appliances ( ). Figure 1 (Slideshare)After acquisition comes the process of exploitation, defined by Gregory as realizing the value of the technologies through selling them as marketable products. In order to maximise their returns on investment are combining internal exploitation through new product development and external exploitation through licensing.