

# Research and Development in Financial Services and the Role of Innovation



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## 1. Introduction

This paper begins with an overview of innovation and why it is important. Innovation impacts every business sector today and financial services are no different. But is it easy to create the right environment to promote innovation? Research and development should be one of the top sources for generating innovation yet studies show that in the financial services it is relatively low.

While taking a look at the need for collaboration to improve R&D and therefore innovation, an examination of geographic concentration highlights the need for collaboration and the benefits that an agglomeration economy will have. It is necessary to gain a better insight into the barriers to research, development and innovation (RD&I) and how we can overcome them. A framework for the product development process is necessary when approaching new products and processes for the financial services, but it has been neglected thus far. Constraints exist as a result of patenting laws, changes to regulation could result in various benefits and these issues must be confronted. The paper examines this topic and the impact of protecting new ideas and information in the financial services industry.

## 2. What is Innovation and why is it important

Peter Tufano in *Financial Innovation* explains that:

*“Innovation includes the acts of invention (the ongoing research and development function) and diffusion (or adoption) of new products, services or idea”.*

In his paper it suggests that *“financial innovation is an ongoing process whereby private parties experiment to try to differentiate their products and services, responding to both sudden and gradual changes in the economy.”* Financial innovation creates new financial technologies, institutions, markets and instruments and is defined as either “product” or “process” innovation.

Why is innovation so important to the financial services? Peter Tufano discusses some of the key arguments:

1. *Innovation exists to complete inherently incomplete markets*
2. *Innovation persists to address inherent agency concerns and information asymmetries*
3. *Innovation exists so parties can minimize transaction, search or marketing costs*

4. *Innovation is a response to taxes and regulation*
5. *Increasing globalization and risk motivate innovation*
6. *Technological shocks stimulate innovation*

In the financial service sector Merton (1992) uses the metaphor “financial innovation spiral” to convey that one innovation begets the next. It is important to keep up with economic growth and innovation is a key to this. IBM state that innovation is extremely important and establish that it is necessary and vital to expand the innovation horizon; *“to stay ahead of the curve and to grow.”* All of these aspects impact on the financial services, innovation has never been so important. Innovation and R&D are entwined together and are the result of each other. It is important to examine R&D in the financial services and how the role of innovation is a driver for this.

### **3. How does R&D effect Innovation**

Research and Development activities are defined by the National Science Foundation (NSF) as:

- The planned, systematic pursuit of new knowledge or understanding toward general applications (basic research)
- The acquisition of knowledge or understanding to meet a specific, recognised need (applied research)
- The application of knowledge or understanding toward the production or improvement of a product, service, process, or method (development)

In looking at the International Financial Services (IFS) Industry chapter on research, development and innovation there was a case study undertaken by the NSF in the US into R&D in the financial services sector.

The findings that were outlined in the IFS Industry chapter were interesting:

*“Based on the interviews undertaken to support the NSF study, it was found that these concepts of R&D did not resonate well within the financial services industry with none of the firms interviewed indicating that they engaged in either the basic or applied research. Where examples of R&D were identified the level tended to vary depending on the type and size of the firm. Investment firms were the main organisations relying particularly heavily on technology to ensure that they could supply*

*accurate and complete information to investors to help differentiate their company from the competition.”*

It is my understanding that R&D needs to be applied differently to the normal “laboratory-based research associated with manufacturing” within the financial services sector. In this paper we explore whether there is a framework or model that exists to help us do so. Throughout the process it was discovered that there are various areas that need to be addressed for advancing improvement. Examining collaborative innovation, agglomeration economies, the barriers that exist to RD&I, and patenting and intellectual property has shed light on the issues with R&D in financial services. Adopting new techniques can help with managing innovation and the function R&D needs to contribute.

The *IBM 2006 CEO Study* realises the role of innovation and R&D, and the importance of the two.

“Innovation plays an important role in supporting the development of the sector [research and development].” They outline the “themes” which suggest this:

- Increased competition and consolidation are forcing financial services companies to innovate to maintain profitability
- Disintermediation is forcing financial services companies to lower costs by using more efficient technologies and to move into new product and service areas
- Across areas of the industry there was evidence of a constant effort to innovate service offerings but this typically took a different form from the traditional “laboratory based” R&D

### **3.1 Collaborative Innovation**

*IBM’s 2006 CEO Study* takes a comprehensive look at innovation and the opportunities that have been opened up to organizations from innovation. They stated new ways of looking at innovation:

- Business model innovation matters
- External collaboration is indispensable
- Innovation requires orchestration from the top

What interested me is the second point; external collaboration is indispensable.

The study states that *“CEOs stressed the overwhelming importance of collaborative innovation – particularly beyond company walls. Business partners and customers were cited as top sources of innovative ideas, while research and development (R&D) fell much lower on the list.”*

This raises the question: Is there a problem with R&D in Financial Services? And what can we do about it?

R&D was only mentioned by 17 percent of the CEOs with regards to innovation according to IBM’s 2006 Study which begs the question *“what type of role should R&D be playing in operational and business model innovation”*.

To expand the innovation horizon, R&D and how it is approached must be improved within the financial services. It is a source that can lead to ground breaking innovation but is currently under developed.

IBM show the need for collaboration inside and out to improve innovation and R&D’s role in innovation. An example they used in the study was Novartis, who establishes strategic alliances with other industry players and academic institutions, which has helped them to further their research and development efforts. Having external connections throughout the industry has helped them in many ways but is important that the misguided issues with research and development are realised for other as it is vital for organisations to be able to expand innovation on all fronts.

One insight the study made is:

*“The huge gap between the need for collaboration and the ability to do so is clearly a significant roadblock to innovation that CEOs need to address. And since so many ideas come from outside, leaders need to pay particular attention to strengthening collaborative capabilities at the perimeters of their organizations.”*

Innovation is a vital player in a firm’s development of new products, processes and ideas. The current issues must be addressed and new ways of approaching R&D and innovation need to be explored. Every area that can be strengthened to help reach the next “big idea” must be examined.

Collaboration leads to a diversity of perspectives which can lead to rich results. It is possible to create the environment in which to do this as *“Technology is now making global collaboration not just possible but easy and productive”* [Surowiecki, J., 2004].

By centralizing and collaborating firms can gain various benefits as outlined by the IBM study; cost reduction, higher quality and customer satisfaction, access to skills and products, increased

revenues, access to markets and customers, overall speed, strategic flexibility, reduced risk and capital investment, faster time to market, focus and specialization, and moving fixed to variable costs.

Collaboration and geographic concentration lead to “knowledge spillovers” and allow for the continuation and growth of innovation. It is an important aspect to be taken into consideration and should be examined when considering RD&I.

### **3.2 Agglomeration Economies and the effect on Innovation and R&D**

Collaboration in innovation leads us to take a look at the geographic concentration of R&D labs, as clustering may lead to agglomeration economies and more collaborative innovation.

Federal Reserve’s research into the geography of R&D activity in the U.S. stated that; *“more than most economic activity, R&D depends on a particular by-product of agglomeration economies called knowledge spillovers — the continuing exchange of ideas among individuals and firms. The high geographic concentration of R&D labs creates an environment in which ideas move quickly from person to person and from lab to lab.”*

In this paper it is asked why R&D labs cluster. It is thought that in order to make use of when knowledge “spills over”, firms locate near to each other. The sharing of inputs and knowledge spillovers is an important aspect for R&D firms when choosing a location [Buzard, K., Carlino, G.A. 2008].

It is thought that clustering in areas influences “people’s ability to receive ideas or knowledge”. It may be a solution that will benefit a company, to consider locating near a cluster, as *“having firms concentrated in a particular area is an efficient way to produce new ideas, leading to innovation and growth”* [Buzard, K., & Carlino, G.A. 2008].

In order for companies to make sustained economic growth it was found that innovation and invention play an important role [Buzard, K., Carlino, G.A. 2008]. Buzard and Carlino state that *“environment encourages innovation”* as attitude and approaches differ in clustered environments.

It was also reflected that *“innovation depends on R&D, and R&D depends on the exchange of ideas among individuals”*. When R&D labs are located near each other knowledge is passed from person to person and lab to lab quicker and it is necessary in helping to maintain the constant growth and innovation.

In *Building on Success* by the International Financial Services Industry in Ireland it was also recognised that *“the promotion and development of interdisciplinary research collaborations between industry and academia is a key mechanism for growing and encouraging the engagement of the industry in research”*. It is believed that *“leveraging the expertise of academia is a way for industry to access the best thinking, people and knowledge while at the same time minimizing the risk”*.

This links back to Buzard & Carlino whereby R&D can be used for the development of new ideas, products and processes. It is crucial that the exchange of ideas is encouraged and in this environment come knowledge workers with varied backgrounds and different perspectives all adding new value to the exchange [Buzard, K., & Carlino, G.A. 2008].

It is also noted that *“Universities are key players not only in creating new knowledge through basic research but also in supplying a pool of knowledge workers on which R&D depends.”*

It is found from the research in *The Geography of Research and Development Activity in the U.S.* that *“locations that are dense in R&D activity encourage knowledge spillovers, thus facilitating the exchange of ideas that underlies the creation of new goods and new ways of producing existing goods.”* In order to establish a good business environment instead of targeting industries, it is suggested that policymakers consider strategies which are conducive to attracting and retaining highly skilled workers [Buzard, K., & Carlino, G.A. 2008].

A focus on “life-style” issues is necessary to attract and retain high-skill workers. Examples of a policy include providing good public schools, reducing urban crime and providing amenities such as clean streets and public parks. Firms should locate near each other and near universities in order to progress with innovation and the growth of new ideas and knowledge.

The International Financial Services Industry in Ireland also believe that key initiatives should include; *“[identifying] company research priorities and [mapping] them against existing strengths of their subsidiaries and academics strengths”, “arrange company participation in academic research projects that addresses the company research priorities”, “develop financial industry network groups and facilitate the identification of common research themes”, and “engage with world leading financial services and other services companies to solicit their support and participation in the International Institute for Services Innovation competence centre”*.

## 4. RD&I in Financial Services

According to, *Innovation in financial services: A McKinsey Global Survey*, a recent McKinsey Quarterly survey found that financial-services executives see innovation as important to the performance of their companies. *“They view product innovation as most important and expect a growing role for business model innovation.”*

It also found that a majority of executives say innovation is more challenging for financial-services firms than for other companies, mostly because of short-term financial pressure. Executives rate their companies as no better than adequate at fostering innovation through practices such as using consumer insights to drive new ideas and dedicating people, processes, and funds to innovation and most executives expect their company’s spending on innovation to increase.

Scott J. Edgett in *The New Product Development Process for Commercial Financial Services* outlines why the Financial Services need to focus on new product development and better process. He lists some of the aspects affecting the current situation which involves the combined pressures of:

- Increased competition
- Rapidly changing marketplace
- New technology
- New and pending legislative changes

*“The attention of senior executives in the financial services industry is increasingly being focused on how well the new product development process is working within their institutions.”* It is imperative to be able to design, develop, and launch new products that are winners [Edgett, Scott J.].

The study showed that a success rate of only 62.5% of projects launched were a commercial success, leaving significant room for improvement. The study also found that most companies take short cuts and the execution of the product process was never fully completed and generally only had a “moderate quality of execution”. In the study it was discovered that *“institutions that follow a systematic process have greater success.”* So it is imperative to look at this with regards to research and development, without a successful product development process RD&I will not be utilized to its full potential.

## 4.1 Problems faced by Financial Services with RD&I

What are the barriers to RD&I?

In the International Financial Services Industry Ireland report the possible barriers to RD&I were examined and a summary of these were offered after an interview programme:

- A lack of collaboration between industry and educational institutions to support industry relevant advanced research
- A lack of understanding of best practice processes for innovation in the services sector
- The financial risks associated with large-scale investments in establishing RD&I facilities with no guaranteed returns
- The lack of government incentives/support for technology companies to support development of leading-edge software solutions for the sector

*“Economic globalisation, rapid technological development and the development of an information society have presented a serious challenge to RD&I. In the increased competition between countries, success is determined by the speed of development and application of new technologies, the speedy implementation of technologies elaborated elsewhere and the availability of a labour force with the needed qualifications. This, in turn, presupposes improving the quality of education, an increase in investments in the RD&I sector, and the development of a flexible and effective support system.”*

## 4.2 Patenting and Intellectual Property

Outside of the financial innovations most businesses protect their intellectual property rights in a variety of ways:

- Patenting
- Licensing
- Proprietary labels (copyrights, trademarks or servicemarks)

Peter Tufano states they can even *“attempt to capture first mover advantages by virtue of their innovation”*. However with financial innovations it is more difficult. There were restrictions on what could be patented, but changes in legislation have led to a look into the results of these changes and what it means for the financial services.

Federal Reserve Bank of Philadelphia has examined this issue. In *Business Method Patents and U.S. Financial Services* Robert M. Hunt studies the changes in patenting since the “American courts made clear that methods of doing business could be patented”. It has become common for business methods to be patented. Hunt is unsure as to whether the evidence so far leads to the conclusion that business method patents have had a significant effect on the R&D investments of financial institutions. It may have resulted in more entry and R&D start-up firms or more efficient trading of technologies.

It is important that patents are granted only for new innovations and non-obvious business methods and that those standards are rigorous [Hunt, R. M., 2008]. The combination of significant technological overlap among firms, elastic patent boundaries, inadequate enforcement of disclosure requirements, and weak patentability standards raises at least the theoretical possibility of perverse outcomes (Hunt 2006). Hunt looks back on this and concludes that in such environments, “firms may obtain more patents but perform less R&D, since the fruits of such efforts would be subject to an innovation tax imposed by rival firms”.

Marios Zachariadis also comments that “R&D intensity has a positive effect on the rate of patenting, the rate of patenting has a positive effect on technological progress, and, finally, technological progress has a one-to-one relation with the growth of output per worker”. It is examined that R&D is inducive to economic growth, and patenting plays a role in this. With both views from Hunt and Zachariadis it is hard to know whether these patenting laws have been a help to R&D or a hindrance to R&D but protecting new ideas and businesses processes is important for competition and leading edge. Further research would have to be conducted, in order to examine the consequences patenting has on R&D in the financial services industry.

## 5. Conclusions

Innovation is crucial to a firm’s success and as a result the financial services industry needs to be more involved in developing its research and development sector. New products and processes are constantly being created and R&D could open up new ways of improving productivity of the innovation process for the financial services. If RD&I are not already a top source for generating innovation a firm should work towards advancing in making it one. In reviewing collaboration, centralization, patenting, product development processes, and executive awareness of the problems inherent to innovation in the financial industry we can see that there are a number of areas where gaps exist. A new method for approaching research and development and the role it plays in

innovation needs to be defined. Financial services are an important sector that need to make use of technological and information systems advances, to mention just a few. It is vital to manage these changes and move forward with the next wave, or even better, lead the next wave.

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