Chapter 6

DISCUSSION, SUGGESTIONS AND CONCLUSION
6.1 Introduction

This thesis investigates the influence of two key transfer strategies of roles and products to global locations during GSD on two organizational drivers of product life cycle. The thesis also evaluates if the software type contributes to this influence. This chapter summarizes the previous five chapters and discusses the key findings, limitations, implications and the study’s contribution to both industry and academia at the level of the whole thesis. There are ten sections in this chapter.

![Structure of Chapter 6](image)

Figure 6.1. Structure of Chapter 6
Beginning with an introduction in Section 6.1, a summary of the research is presented in Section 6.2. Section 6.3 discusses the conclusions derived from the research results and compares them against the literature. Section 6.4 maps the research questions with the results. Section 6.5 provides summary of the main findings of the research. Section 6.6 details the implications of the research and its and contributions to new knowledge and industry. The chapter continues with the research limitations in Section 6.7 and provides directions and input for future research in Section 6.8. The chapter has been summarized in Section 6.9 followed by concluding remarks for the entire thesis in Section 6.10. The structure of Chapter 6 is shown in figure 6.1.

6.2 Summary of the study

This study focuses on the key relationship between GSD and its strategic impacts connected to Product life cycle. It has considered two key strategies involved with respect to transferring roles and products to global or offshoring locations and studies the influence of this directly and indirectly on internal or organizational drivers of product life cycle. The research effort will help product strategists and global product companies to look at GSD or Offshoring as a practise from a long term strategy view, much beyond its short term and medium term benefits of cost arbitrage and filling in skill or capacity gaps. The study would help them to understand and factor-in GSD’s potential long term impact on the product life cycle and in turn on product strategy.

6.2.1 Purpose of the study

The purpose of the study was to develop a comprehensive understanding of the nature and extent to which strategies of GSD concerning transfer of roles and products to global locations influence strategic parameters of the Enterprise Software product affecting the product life cycle. The two key transfer strategies considered for this study are:
Co-locating two key roles along with the role of Product Engineering at global locations

- Products chosen to be transferred to global locations based on their maturity stage

With Cloud based deployment type of software products having evolved as a disruptive alternative to the traditional ‘On-Premises’ type of software products, the study also had a purpose to see how the two software types further influence the strategic parameters of software product life cycle combined with the two transfer strategies.

On the former strategy, namely co-location of roles, the research sought to study if and how, by co-locating two key roles along with Product Engineering, namely Product Management and Product Support, the challenges of GSD implementation were addressed. The four challenges of GSD implementation studied – namely Coordination issues, Communication issues, Process maturity and Knowledge management related were zeroed-in on based on what had been studied and recorded in multiple literature. Literature also records that successful implementation of GSD could influence sales enablement and opportunity to expand into new markets and hence the study sought to empirically relate the co-location strategy to drivers of product life cycle.

The second strategy related to the choice of products identified and transferred to global locations, and the study sought on how the product maturity stage influenced two key internal or organizational drivers of product life cycle. Product life cycle is typically influenced by external or market related factors including changes in customers’ usage pattern, market saturation, competition and technology evolution as well as by internal factors that are within the control of the organization. This study focused on how these organizational drivers of product life cycle were influenced by the product maturity stage-based transfer strategy of GSD. The two organizational drivers of product life cycle studied were – Customer satisfaction and Sales enablement.
6.2.2. Research participants

In total, about 146 respondents participated in the survey research from about 250 that were originally targeted. Yet, the responses of 114 were actually considered for the research that were valid, complete and received for the analysis to be completed. The targeted participants were experienced professionals working in global Enterprise Software companies and directly involved in GSD. They belonged to roles and positions ranging from middle to senior management levels with titles including Managers, Senior Managers, Directors and Vice Presidents. The roles they belonged to were Product management, Product Support and Product Engineering – the three roles or functions that the research focused.

Almost half of them belonged to Product Management and the remaining were from Product Development and Product Support groups. Most of the companies were North American and European based. The respondents’ base location was distributed across the globe, although more than 90% of them were based at offshore locations and the remaining were based at company headquarters. The mix of those that managed one single product and those managed multiple products were equal. Typically, those that managed multiple products were relatively playing a higher level of supervisory roles.

6.3 Research results compared with literature

6.3.1 Influence of co-locating key roles along with Product Engineering at global locations, in addressing the implementation challenges of GSD

This research indicates that when key roles are co-located or placed along with product engineering (also called as product delivery) roles, it enables better addressing of implementation or execution issues that are typically witnessed in GSD. The two key roles that are studied for the co-location strategy are
• Product Management and

• Product Support

Enterprise software products that had their product management or product support roles fully co-located with Product Engineering had the implementation challenges better addressed than those companies that had the roles partially co-located.

The four challenges of GSD implementation that were focused on this study are listed below:

• Coordination issues

• Communication issues

• Knowledge Management issues and

• Issues related to Process Maturity

6.3.1.1 Placing the right adjacent stakeholder roles along with product development is one of the solutions in addressing the key challenges in a GSD set up

This finding is reciprocated by Khanna (2017) who cites that providing authority and freedom to the management at the offshore locations, as one of the key approaches to the talent management challenges faced at these global locations. He suggests that authority and responsibilities of the various roles at these locations need to be in line with the strengths of these locations.

Similar observation is made by Puneet et al in a McKinsey report (2013), wherein it is emphasized that offshore development teams should front end product development teams and that the offshore development centres should own and aim to manage end to end business processes. This could be done only when the key peer functions are transitioned to the offshore centres along with product development.
Daniela Damian (2007) acknowledges that communication, coordination, knowledge management and process related issues offer challenges to Requirements Engineering phases in GSD and record that interactions required between designers, business analysts and managers that are distributed across sites is one of the trigger for the issues. This leads to the solution that when these roles are co-located, the issues are possibly better managed.

Boland et al (2004) discuss in a case study that the communication efficiency came down when the case study project was shifted from a co-located scenario to a distributed one. This study corroborates to one of the research results that when projects are offshored as part of GSD, better results are achieved when key roles are also moved to global locations along with product development.

Battin et al (2001) discuss various issues in GSD including communication and coordination; one of the few solutions recommended therein talk about transitioning the complete subsystems to the offshore global location with full life cycle responsibility, instead of moving in parts. This, again related to co-locating related business roles at the global development centres, one of the results of the study. Inhibited communication and coordination issues witnessed during GSD in turn lead to reduced productivity and increased intervals between product releases, as per Mockus et al (2001) when talking about distributing roles and activities across sites and not co-locating them.

As per Carmel et al (2006), the fourth and final stage in the maturity cycle is called proactive strategic focus. As per the model, at this 4th stage, global sourcing centres would be performing core corporate activities including new product development, innovations that lead to global growth; the offshore centres would house people with domain expertise. This aligns with the research result that matured offshore practice would need to transition and co-locate strategic roles at offshore centres.
The research result of better managed GSD implementation when key roles are co-located, is not just limited to software product industry alone but to other hi-tech industries as well. A case study done by Terwiesch et al (2001) connected to data storage on the international product transfer from USA to an Asian country, talk on the role of co-located key functions at offshore locations enabling addressing communication and co-ordination issues.

6.3.1.2 Co-location of Product management and Product Support roles with Product Engineering

Lane et al (2008) analyse the impact on project deliverables with respect to placement of various roles in a GSD set up. They cite that when the product designers, business analysts, development and support personnel were centrally placed to be accessed by remote stakeholders, it led to coordination issues.

The observation is in line with the empirical study done by Botzenhardt et al (2011) which establishes that cross-functional integration across Product Management and Product development roles positively affect the product release’s success. Similarly, Yan (2004) talks of software maintenance support offered from offshore locations and improving the efficiency. The study was done based on a case study at an actual project.

Above quoted literature is in line with the empirical results of this study that when Product Management or Product Support are co-located with Product Development, it leads to reduced issues with respect to various challenges of GSD implementation and that those product groups that have co-located their product management and product support roles with product engineering fully, have addressed these challenges better than those that have co-located these roles partially.
6.3.2 Influence of Product Maturity stage-based transfer strategy of GSD on key internal drivers of product life cycle

This research indicates that when software products are transferred to global locations based on their maturity stage, during GSD, there is an influence on internal organizational drivers of product life cycle. The two drivers of product life cycle considered for this study are

- Customer satisfaction and
- Sales enablement

As per the results, Enterprise software products at their mature/decline stages did lead to higher sales enablement and customer satisfaction than those at their introduction/growth stages of product life cycle.

The four stages of product life cycle are grouped in to two pairs for the convenience of survey responses, namely:

- Introduction & Growth stages and
- Mature & Decline stages

6.3.2.1 Product Maturity stage as a key factor of considerations during product transfer decisions of GSD

A detailed case study was done at Ericsson’s Offshore-insourcing operations by Smite et al (2013) on strategies that facilitated software product transfers. The study included products that were done with, as well as in the process of transfers, across Sweden and a couple of locations in Asia. They summarized that product maturity, complexity and market pressure are three key factors that alleviate the product transfer process. They also cite that complex development activities may be inappropriate when development is done at multiple locations with the follow-the-sun approach. This could
be linked to the maturity stages of the product since typically at the earlier part of the life cycle is when the development work would be more complex and it corresponds to the current research that has considered maturity-based selection strategy as a key factor in GSD decisions.

Smite et al (2013) emphasize that products so transferred need to have sufficient time left in their life cycle to be able to ramp up, justify the costs incurred in transferring and thus allow reaching economic benefits. They conclude in their study that, “the point of software life cycle at which the offshore insourcing is implemented, influences the degree to which expected benefits are achieved”. This would translate to the fact that the maturity stage of a product is a key criterion in determining the extent of realization of benefits of GSD.

Inhibited communication and coordination issues witnessed during GSD in turn lead to reduced productivity and increased intervals between product releases, as per Mockus et al (2001). Therefore, the study says, it is important to identifying the right candidates or entities/ chunks of work for transfer across global locations, as per the study which lists the criteria based on which these candidates are chosen for transfer as: 1) Transfer by functionality, 2) Transfer by localization 3) Transfer by development stage and 4) Transfer by maintenance stage – which in a way could be synonymous to product maturity stage.

Cormican et al (2009), list maturity stage of product life cycle as a key factor in extending product life cycle among others that includes nature of technology, cultural differences, and geographic distance between locations, in their analysis on the role of technology transfer across global locations.

These literature establish that irrespective of other cost and skill gap oriented considerations that are popular when business decisions are made on identifying products
to be transferred to global locations during GSD, the maturity stage of the product plays a key role in establishing the success of transfer and deriving the benefits of GSD and this is in line with the result of the current research.

6.3.2.2 Products at their mature phase of the life cycle are better candidates for transfer during GSD.

As the literature cite in the previous section, product maturity stage evolves as one common and key factor both for identifying the products to be transferred as well as one that facilitates smooth transfer.

The study of Cormican et al (2009) relates this attribution of product maturity stage as a key factor during product transfer decisions to the possibility that, the less mature a product is, less could be the availability of information on design and development and hence could call for higher efforts during transfer.

Herbsleb et al (2003) cite that stable projects are more advantageous for GSD as they would call for less changes during requirements management phase and hence coordination issues could be less. In this context, complex projects could be more or less mapped to products at their initial phase of the life cycle.

Hahn et al (2011) approach the explanation of why matured products are preferred to be offshored from a different perspective. They quote that offshoring of service activities involving lower level of skills and lower information sensitivities would occur earlier than those with higher levels; this could arguably be mapped to mature versus growth stage products as well, in terms of product life cycle stages.

Mockus et al (2001) explain the reason of why products considered for transfer is typically based on maintenance or maturity stages. Products in maintenance phase would typically have less scope for addition of new features and hence could be transferred to sites that are not involved in developing new functionality. Therefore, resources that are
capable of developing new functionality are freed up from maintaining it, is their perspective in the study.

Battin, et al (2001) discuss various issues in GSD including communication and coordination and one of the few solutions recommended therein talk about transitioning the complete subsystems to the offshore global location with full life cycle responsibility, instead of in parts. This could be related to mature products that could be given the full life cycle management control at offshore locations which is one of the results of the study.

Going beyond IT industry, consideration to transfer products at their matured stage also applies in manufacturing industry. A case study conducted by Alex et al (2011) in a Pump manufacturing company in Denmark to explore and identify the most optimal point to offshore, conclude that companies that offshore at pre-matured phases could face high and unexpected implementation costs and therefore recommend that offshoring happens when the production is at an optimal point in terms of maturity and control. While hard core-manufacturing and software product development follow two completely different production cycles with different market dynamics, it could be compared and seen the relevance between products’ maturity stage and their transfer to global locations.

The empirical results of this study establish that product maturity stage could be considered as a key factor in GSD decisions pertaining to identifying products to be transitioned to global locations and also that more the mature the products are, the influence they have on sales enablement and customer satisfaction are higher and thus they influence the organizational drivers of product life cycle more than that are at their introduction or growth stages.
6.3.2.3 Relationship of Product Maturity stage based transfer strategy of GSD and Product life cycle

Cormican et al (2009) reciprocate an observation in their analysis on the role of technology transfer across global locations in extending product life cycle and list ‘maturity stage’ of product life cycle as a key factor among others. It is in line with the research focus of establishing maturity stage based transfer strategy could in turn result in extending the product life cycle.

6.3.2.4 Relationship of GSD, Sales Enablement and Product life cycle

The Product life cycle theory referred by Kotler et al (1990) typically relates the sales of products over time. As listed by Stephan and Silvia (2008) on the Offshoring Research Network (ORN)’s Survey findings, growth strategy, competitive pressure, improved service levels and business process redesign (figure 2.4) were the strategic drivers of GSD in addition to reduced labour cost and access to skilled resources. Massini et al (2010) record that drivers of offshoring include competitive pressure, growth strategy, and ability to cater to new geographies and accelerated go-to-market feasibility. With these strategic sales drivers directly related to offshoring, one could associate GSD’s successful implementation to the internal or organizational drivers of product life cycle. As per Kazemi et al (2011), extending the ‘product-availability’ time during the maturity stage would increase the sales of the product. Higher sales would mean extended product life cycle.

Also, Meenaghan et al (1986) explain that Product life cycle's length and shape are not just based on the unit sales as depicted in the Y axis, but also other attributes like margin or product's characteristics and other marketing strategies employed. With the research results associating the co-location strategy of key roles positively impacting
GSD’s implementation, and with the literature associating GSD’s implementation to various enablers of sales cycle which in turn is one of the drivers of PLC, we could posit the relationship of GSD and PLC’s drivers which was one of the research objectives.

6.3.2.5 Relationship between GSD, Customer satisfaction and Product life cycle

As Van Der Wiele et al (2002) indicate, there is a positive relationship between organizational performance indicators, like sales volume or sales margin and customer satisfaction. Prasad (2012) adds that customer satisfaction ratings influence sustainability of product life cycle. Hallowell (1996) extends the discussion on how customer satisfaction is related to profitability which in turn is one of the drivers of product life cycle. The research results align with the Maturity-stage based GSD-transfer strategy’s impact on enabling customer satisfaction when matured products are transferred to global locations and also the interrelationship of customer satisfaction enabling sales. In line with this observation, the literature had discussed the relationship of these two drivers of product life cycle within themselves and also with the transfer strategy.

6.4 Research Questions answered

6.4.1. Does Co-location of Product Management and Support roles with product engineering, enable GSD’s implementation issues addressed?

GSD being a business reality, has become the norm of software development in global software product companies. When various roles are transitioned to global locations as part of GSD, the drivers for choice of roles have mostly been the factors of cost advantages and skills availability. As a result, Product Development or Product Engineering is one of the initial roles that get transitioned to global locations, in general.
This research has established that transitioning and co-locating other key roles such as Product Management and Product Support, along with Product Engineering do influence and help addressing the challenges of GSD. Product groups that have fully transitioned and co-located these key roles are proving to be addressing the below issues of GSD better than those that have co-located these roles partially.

6.4.2. Does the product transfer strategy based on product maturity stage have an influence on the key internal drivers of Product life cycle?

When software products are identified to be transitioned for product development at global or offshore locations during GSD, the decisions are based on multiple criteria that applies to the business and organization at any given time. This research has established that the maturity stage of the software product concerned could play a key role and influence two key drivers of product life cycle – namely Customer satisfaction and sales enablement. Among other internal or organizational factors, they drive the product life cycle and the extent to which they get influenced depends on the maturity stage of the product that is transferred. The research has also established that products transferred to global locations during GSD in their mature and decline stages lead to better customer satisfaction and sales enablement than products at their introduction and growth stages in the product life cycle.

6.4.3. Does the ‘type of software’ influence the effect of co-located roles on GSD implementation challenges?

Product software could be classified across multiple types. Since last decade or so, with the evolution of Cloud based or ‘SaaS’ type software deployment as a disrupting alternative to ‘On-Premises’ type of product software, the research included an objective of evaluating how these two software types influence the effect of co-located key roles
on addressing the GSD challenges. The research undertook two types of evaluation. One, to check if software type had a combined effect with co-location strategy. Two, was to see how the effect of co-location strategy applied on the ability of addressing GSD challenges in each of the software types.

When it came to moderating or combined effect, software type did not seem to play any role on the influence exerted by co-locating the role of Product Management with Product Engineering on addressing GSD challenges. But when it came to Product Support, the challenge of communication issues was incrementally influenced by both software type in addition to that exerted by co-located Product Support. The other two challenges that were studied – namely Coordination and Process Maturity were insensitive to the moderating effect of Software type.

Individually, in the case of ‘On-Premises’ type of software products, co-located product management and co-located Product Support groups did influence the challenges of GSD. Groups with fully co-located product management or Support roles helped address the challenges better than groups where Product Management was partially co-located. When it came to ‘SaaS’ type products, while co-located Product management groups could address the communication issue better, it did not have any significance for the other three challenges. Similarly, for ‘SaaS’ type of products, while co-located Product Support groups could address coordination better, but the other two challenges were insensitive to the co-location strategy.

To summarize, in general, software type did not offer any moderating effect on co-location strategy in addressing GSD challenges. Research results did not offer any correlation for co-location on top of GSD challenges, excepting communication and coordination in the case of co-located Product Management and product support respectively. It would mean that for ‘SaaS’ type of products, by co-locating Product
Management communication issue was addressed better and there was better coordination when product support was co-located with Engineering. Given the evolving stage of ‘SaaS’ type of products, one could posit that co-locating key roles such as Product management and Product Support along with product engineering did have a direct and positive impact in the case of ‘On-Premises’ type of products to address the key challenges of GSD; in the case of ‘SaaS’ type it helped addressing challenges related to communication and coordination and not others.

6.4.4. Does the ‘type of software’ influence the effect of maturity-stage based transfer strategy on influencing Customer satisfaction and sales enablement?

The research had an objective of evaluating how the two software types – ‘On-Premises’ and ‘SaaS’, influence the effect of Maturity-based transfer strategy on Software products on the two internal drivers of Product life cycle. The research undertook two types of evaluation. One, was to check if software type had a combined effect with maturity-stage based transfer strategy in influencing customer satisfaction and sales enablement. Two, was to see how the maturity-stage based transfer strategy effect applied on the ability of influencing these two drivers of product life cycle.

When it came to moderating or combined effect, software type did not seem to play any moderating role on the influence exerted by the maturity-stage based transfer strategy on customer satisfaction, but it did have an effect on sales enablement. The software type did play a moderating effect and mature/decline stage products led to better sales enablement than those at their introduction/ growth stage. This would mean prediction of sales enablement was possible with changing values of software type or product maturity stage. The results were better for ‘On-Premises’ type and for Mature and decline staged products comparatively.
Individually, only in the case of ‘On-Premises’ type of software products, maturity-stage based transfer strategy mattered in influencing the two drivers of product life cycle. In the case of ‘SaaS’ type of products, there was no impact witnessed and both the drivers of product life cycle were insensitive to maturity-stage transfer strategy.

To conclude, maturity-stage of the product did influence the drivers of product life cycle. More the mature the software product is, higher was the values of these drivers as compared to less mature products and this effect was witnessed only in the case of ‘On-Premises’ type of products and not in ‘SaaS’. This could be explained with the reasonably lesser stage of maturity for the ‘SaaS’ type of products themselves when it comes to offshoring cycle.

Software type did play a moderating role on this influence when it came to sales enablement.

6.5. Main Findings of the Study

6.5.1. Co-locating key roles at offshore locations along with Product Engineering and its influence on GSD implementation

This research has established that transitioning and co-locating other key roles such as Product Management and Product Support, along with Product Engineering does influence and help addressing the challenges of GSD.

Product groups that have fully transitioned and co-located these key roles are proving to be addressing the issues of GSD better than those that have co-located these roles partially.

6.5.2. Influence of Maturity stage of Software products transferred on the Customer Satisfaction and Enabling Sales

This research has established that the maturity stage of the software product concerned
plays a role and influences two key drivers of product life cycle – namely Customer satisfaction and sales enablement.

Products transferred to global locations during GSD in their mature and decline stages lead to better customer satisfaction and sales enablement than products at their introduction and growth stages in the product life cycle.

6.5.3. Added influence of ‘type of software’ on the effect of GSD’s challenges addressed by Co-location strategy

The influence of Co-location of key roles on addressing the challenges of GSD was witnessed in ‘On-Premises’ type of Software products for all types of challenges and for both the co-located roles. The ‘SaaS’ type products were mostly insensitive and did not differentiate on the impact of degree of co-location on addressing GSD’s challenges. Exception was that, co-located Product Management could influence Communication issues better and co-located Product Support could influence coordination better when co-located fully, in ‘SaaS’ type of products as compared when these two roles were partially co-located.

Software type did not offer any moderating effect on co-location strategy in addressing GSD challenges in general. Exception was that in the case of co-located product support role, it offered better results of addressing Communication issue of GSD when combined with ‘On-Premises’ type software products as compared to the combined effect of ‘SaaS’ type. The rest of the challenges did not get any further influenced by the type of software.

6.5.4. Added influence of ‘type of software’ on Customer Satisfaction & Sales Enablement by Product-Maturity stage-based Transfer Strategy

The influence of Product-Maturity stage-based Transfer Strategy on the two internal
drivers of product life cycle—namely Customer Satisfaction & Sales Enablement—was witnessed only in the case of ‘On-Premises’ type of Software products. It means that ‘SaaS’ type of products did not differentiate on their results of these two drivers for any stage of product maturity of the products that were transferred to global locations.

Also, Software Type did not offer any moderating effect on the influence by maturity-stage based transfer strategy for Customer satisfaction. But it did offer such an effect when it came to Sales enablement. In other words, there was higher degree of influence for the maturity stage based strategy when the software type was ‘On-Premises’ and not ‘SaaS’, when it came to influencing Sales enablement; but software type did not matter when combined with maturity-based transfer strategy when it came to influencing Customer satisfaction.

**6.6. Implications of the study**

The various research implications of the findings are explained in the following sections.

**6.6.1. Theoretical implications**

This thesis provides several contributions to the academia. Firstly, it presents the view of GSD from the perspective of software products. Secondly, it has extracted and presented two strategies of transfer during GSD that the literature had cited in general but never went in depth nor presents any empirical evaluation. Third, it has attempted to connect a popular operational practice like GSD that is prevalent in almost all the global software product companies and an important concept in both marketing and operations streams—Product life cycle.

**6.6.1.1 GSD from product perspective**

GSD is not just a concept but an operational practice in almost every global software
company and a vital element of a sustainable cost model in the software industry. There are numerous literature published on outsourcing and offshoring of software development but most of them have taken in to consideration the services’ part of software development and not that much on software product industry. This is possibly because the projects on services are many folds more than that of software products more so from the perspective of global development. Be it the presentation of benefits, the drivers or success factors or analysis and solution of various issues and challenges of GSD, studies have more been done from the point of view of software services that are delivered as projects.

This research, presents GSD as it is practiced in the software product industry specifically and with input from more than 100 managers that are part of global software companies, presents the reflection of GSD’s issues apply to the product part of the industry. While the study seemed to have focused on two transfer strategies of GSD, the contribution to software product specific literature is distinct. It has taken the issues and challenges of GSD as recorded by the literature and gets the view of product professionals and thus is able to bring out empirically on how the issues and challenges impact the product industry differently and such a study definitely is a good addition to the existing literature on GSD as practiced in software products industry.

6.6.1.2 Strategies of GSD for software product industry

While there is limited literature on software products side that talk on the various issues faced when the globalization process is implemented, there are not much of studies out there that specifically and empirically analyses the impact of approaches followed or strategies of transfer from the headquarters to the global locations. While some literature that are quoted in Chapter 2 talk of the factors on which the projects are transitioned to
global locations, most of the studies do not cover any transfer process as strategies, in depth. This research has considered two transfer strategies – one, is to do with transfer of roles and another is to do with transfer of products and has recorded the impact of them on the process of GSD implementation as well as on product strategy and parameters. With most of the existing literature recognize the popular drivers and benefits of GSD as cost arbitrage and opportunity to find skilled resources, the transfer process does get covered by existing literature only on the coverage of these projected benefits.

Existing studies do not focus on presenting the various basis and factors to transfer roles and products to global locations as strategies. In that sense too, this study would definitely be useful for future studies in terms of approaches and strategies of effecting GSD in product companies from the perspective of basis of transfer of roles and products.

6.6.1.3 Connecting GSD and Product life cycle

GSD as discussed before is a matured practice. Product life cycle is a theory that is used in taking management decisions. There is very little research material out there that actually connects GSD’s impacts all the way up to product life cycle. Most of the research materials talk about the short term and long term impacts of GSD more from an operation and execution perspective and not on how it impacts product strategy. This is possibly because, as said before the practice and studies of GSD have mostly viewed it as something that was an opportunity to utilize low cost resources available and so the extent of viewing GSD’s benefits limit to its sort term financial impact only. But this research goes beyond it and empirically studies far reaching impact of GSD in terms of extending products’ life cycle that has cascading effects for the product and for the organization.

This study presents a new perspective and hence would prove to be a material that could be referred by future researchers on both GSD and Product life cycle.
6.6.2. Practical implications

As mentioned before, Global Software product companies have viewed GSD more as a model that would facilitate reduced development costs and help ramping up of skilled workforce. Apart from the academic research materials, most of the whitepapers that have been written by analysts and corporates have viewed GSD only from cost and labor availability perspectives. Executive or management decision making have been mostly based on these two drivers when it came to the roles or products to be identified or prioritized to be transferred to various global locations.

This research is possibly first of its kind where an attempt has been made to look at how GSD must be seen beyond the tactical impacts on the revenue or skill gaps side and be made a basis for decision making on transfer of roles and products on the product strategy. Specifically, the implications of this research to the Software product industry could be presented from the points of views of various roles or business functions as below:

6.6.2.1 Product Managers

Product Managers who oversee the life cycle of the product strategically and tactically would be benefited by looking at GSD or offshoring as a strategy to extend product life cycle which is the scope of this study. Extended product life cycle could present opportunities to sustain and grow products’ roadmap and cash flow that could in turn be useful to expand the products functionality and in to new markets. Also since the research recommends that when product managers are co-located with Product development, GSD implementation would be smoother and working with development or engineering teams in the same location would lead to improved metrics and better control on project delivery.
6.6.2.2 Product Engineering/ Development Managers

Product development managers oversee and are accountable for delivery of product and its releases. Studies like this performed on co-locating peer roles like Product Management and Product Support would benefit Product Engineering groups since the interaction, communication and collaboration with those roles would be more effective due to locational and time zone advantages. As this research opens up an approach of how matured products could be managed to result in extended life of the product, it could in turn open up opportunities for sustained investment in the product and extended career growth opportunities and benefit the development team.

6.6.2.3 Executive and senior management of the software product company

In general, top management and the executive, in their decision making on GSD strategies are guided by operational issues in terms of capacity and skills required and cost to build. It is not based on how the decision to offshore the product and transition or roles, prioritization of products to be moved and their maturity stages could impact and benefit product strategy and product life cycle. This research therefore, equips the top management to look at offshoring with a different approach of cost-benefit analysis in terms of long term impact to product life and product strategy. With this research shedding light on offshoring strategy of ‘SaaS’ type of products, it does facilitate executive decision making on the ‘SaaS’ strategy too. With these types of studies connecting the choice of roles to be moved to global locations and choices of product to be moved based on their maturity stages giving an idea of extending the products’ life, the top management is facilitated to strategize their long term plans differently.
6.6.2.4 Customers

Customers who have invested in a software product cumulatively and year-on-year in product maintenance and upgrades are benefited when there is a possibility of extending products’ life. By the software vendor company’s offshoring a product strategically, the customers have less pressure to migrate out of the product owing to its nearing end of life cycle. They would in turn be possibly getting more value and returns out of their cumulative investment on the product over many years, if the product’s life gets extended. They are also benefited that the product could be more actively managed from offshore as compared to that from headquarters, due to cost advantages more so if the product is at over- matured or decline stages in their life cycle.

6.7 Limitations of the study

Limitations of this study have been listed below:

(1) With as many as 114 product professionals representing almost half of top 100 product companies of the globe participating, the study could not make the names of these companies public due to confidentiality reasons as requested by the survey participants. The research would have possibly got more references and thus been useful for many more researchers when the names of the companies had been published too.

(2) A pure play random sampling was not possible since accessing various professionals working in global companies to take part in the research was very difficult given the apprehensions of having to reveal confidential information of the products they manage and the company. The research had to, therefore adopt reference or snowball sampling, which is non-probabilistic.
(3) A quantitative research such as this could have been better analysed with a bigger sample size than 114. Given the challenge as explained in point (2), the sample size of 114 was the best possible, given other constraints explained in chapter 4. However as explained in Chapter 4, this sample size is much higher than many other important studies done in the field of GSD.

(4) Most of the participants were based at their Indian subsidiaries of the global companies, given the fact the snowball sampling was followed. This might not have skewed the results though, since most of the global software companies have had GSD operations in India.

(5) There has been less participation from Product support roles as compared to the participants from Product Management and Product Engineering.

(6) It was not possible to obtain questions in the questionnaire design and so in the scope of the research, quantifiable information on product revenue, pricing, life cycle extension and change in the numbers of clients from the participants since these are perceived to be business critical and sensitive information. These data could have improved the empirical quality of the study to a better scale.

6.8 Scope for future research

Future studies could scope-in the following themes:

(1) The current study could be further deep dived with empirical research on proven examples of products’ life extensions registered due to GSD

(2) Most of the research participants for the current research were product professionals as intended. Yet, the fact that they are associated with their products make them be passionate on their products, work and also to be
positioned to give favorable answers for such surveys. Future studies could be done targeting only the business leaders whose views could be broad-based and business focused than product oriented.

(3) While the current research focused on transferring product-oriented roles to offshore locations, further studies could be expanded by studying the business impacts of transferring leadership positions to offshore locations.

(4) Further studies could be done on how the locations of customers influence business impact of offshoring. Literature record the customer locations also as one of the drivers for GSD and hence studies could be undertaken if and how GSD and its strategies are influenced by customer geographies.

(5) Research could look in to how new development methodologies like agile development and GSD together impact product life cycle. With agile development methodology becoming more popular and increasingly being adapted and that some of the roles like Product owners are being newly defined, it would be useful to see how this new methodology impact product parameters along with offshoring

(6) Studies could look in to the influence when it comes to offshore outsourcing and compare with offshore insourcing- which this research focused on. Offshoring typically would include outsourcing in addition to insourcing that was considered in this research. Exclusive studies done on offshore outsourcing and when combined together with that on insourcing, could benefit wider enterprises and also could broaden the outlook of outsourcing as a total phenomenon.
6.9 Chapter Summary

This chapter explores the meanings and significance of the findings and research results that were detailed in chapter 5 and how these findings compared with the literatures reviewed in Chapter 2 as well as the research questions listed in Chapter 3. It further presented the contributions, limitations and implications of the study and goes on to highlight the future research scope. Finally, the chapter presents the overall summary and concluding remarks.

6.10 Concluding remarks

This study characterizes the results of a research in the field of Global Software Product Development (GSD) with respect to Software Products. The research goal was to study and evaluate the influence on internal or organizational drivers of product life cycle by various software types and transfer strategies of roles and products to global locations during GSD. In general, GSD as a practice had been adopted by global software product development companies, more from the perspective of cost arbitrage and skills availability. Review and analysis of more than 100 research papers and white papers published across close to 40 years, between 1981 through 2018, identified the role of product maturity as one of the factors while identifying products to be transferred to global locations as part of GSD and the benefits of co-locating few key roles along with Product Engineering at global locations. This study had empirically evaluated the influence on internal or organizational drivers of product life cycle by various software types and transfer strategies of roles and products to global locations during GSD. With research input from professionals working in Global Software Product companies that contribute to more than 40% of global software product revenue, the research results empirically establish that software products at mature or decline stages of their life cycle
influence organizational drivers of product life cycle – namely sales enablement and customer satisfaction, more than those at their introduction or growth stages. The results also establish that when key roles are co-located at global locations along with Product Engineering, they help addressing the challenges of rolling out GSD better. The results establish that the Software type of ‘SaaS’, as compared to the ‘On-Premises’ type, is in general insensitive to the transfer strategies studied.

As Day (1981) explains, it is not easy to ascertain the present life cycle position of a product unambiguously established. The boundaries between the product maturity stages are elusive and planners could not accurately determine the maturity stage of a product or in particular when and how the external factors could influence the product life cycle. In this background, it is beneficial for the product companies to be able to understand if and how GSD and its strategies could effectively be applied to be able to influence some of the drivers of product life cycle which was the main objective of this study.