Project Portfolio Management in the Pharmaceutical Industry

Do Pharmaceutical Companies benefit financially from Project Portfolio Management Systems?

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Preface

The project work started in March 2017, but the research topic was decided long before that time as the subject is of great interest to the author. It was interesting to review and analyse processes I have been working with for such a long time and reflect on how I would do things differently if I were to do it again, based on the knowledge gained through my research. I would like to express thanks to; my key informant interviewers, my supervisor and my husband who constantly pushed me to start and finish this project.
Abstract

How to stay competitive in a fast-moving global market is a challenge many pharmaceutical companies are faced with today. Pharmaceutical companies are implementing Project Portfolio Management systems to better manage their new product development projects from Idea-to-Launch in order to stay competitive.

In this research study, the author will focus on one main question: Do pharmaceutical companies benefit financially from Project Portfolio Management solutions?

Based on this research the answer is, yes, they do. It is concluded that PPM systems and processes add financial benefits to pharmaceutical companies, especially larger companies managing a number of projects for markets worldwide.

Successful implementation of Project Portfolio Management involves team work and is dependent upon a number of factors, including the system, processes, structure of the organisation, management and employees.

Project Portfolio Management allowed Actavis to build a comprehensive view of projects that were spread across research and development centres worldwide and were to be launched in multiple countries. The system, together with the process, enabled the company to transform from chaos to structure.
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1 Introduction

Pharmaceutical companies are among the highest research and development (R&D) spenders in the world. Healthcare demands are increasing due to growing and ageing populations and the rise of chronic diseases. Total global pharmaceutical R&D spending is increasing year by year. “In 2016, the pharmaceutical industry spent some 157 billion U.S. dollars on research and development. To some estimations, this figure should increase to over 180 billion dollars in 2022” (The Statistic Portal, n.d.).

Project Management has become increasingly important within the pharmaceutical industry. The reasons include increased R&D cost for new products; stronger competition in the industry, partly from generic drug companies; strict regulatory requirements, and a wave of mergers and acquisitions.

Pharmaceutical companies are getting larger and more global and this is creating a need for better control and streamlining of processes. Project Portfolio Management (PPM) solutions are designed to support new product development and to get innovations to market faster and more effectively. Pharmaceutical companies of all sizes are implementing PPM solutions to optimise project and portfolio management.

This is an in-company focused project where Actavis, a generic pharmaceutical company, is used as a case study. The company implemented a Project Portfolio Management solution in 2011 for the first time and expanded the usage of PPM in phases as the company grew through M&A. Implementation of systems includes implementation of new or improved processes. Focus will be placed on the Idea-to-Launch process.

1.1 The Objective of the Research

The main objective of this research is to find out if pharmaceutical companies are getting the financial benefits, promised by product vendors, when implementing PPM solutions. In this research, the author will focus on one main question: Do pharmaceutical companies benefit financially from Project Portfolio Management solutions?

In order to answer the research question, the following questions need to be answered:
➢ Does PPM add value to the business?
➢ Does the tool support Portfolio Management?
➢ Does the tool support Project Management?
➢ What are the main benefits of using PPM tools?

1.2 The Thesis Structure
The author started the work by defining the research question and defining methods and techniques to collect and analyse data. Information on Project Portfolio Management was gathered from scholars, analyst companies and product vendors, but first and foremost from pharmaceutical industry experts who have worked with PPM tools in project and portfolio management functions. Empirical data was collected by face-to-face interviews and an on-line survey was prepared and rolled out.

The project is a mixture of literature review and empirical work undertaken by the author. Project Portfolio Management is fairly new and research has this far mainly addressed the processes and tasks of PPM. The theory will be followed by empirical evidence. The empirical evidence will mainly be analysed qualitatively. The author will be drawing on published documents and reports as well as her own survey of the industry.

1.3 Why PPM?
The author has over 20 years’ work experience in implementing IT systems for companies in various industries, including the pharmaceutical industry, and has been actively involved in three PPM solution implementations for Actavis.
2 Research Methodology

Before analysing the theories on Project Portfolio Management (PPM) systems and processes and on potential Return on Investment (ROI) the research methodology will be explained.

“There are different ways of drawing information from data: these are called methods. A method is a particular, systematic and orderly approach taken towards the collection and analysis of data in such a way that information can be obtained from those data” (Jankowicz, 2013, chap. 3, p. 29).

This chapter describes the methods used by the author to answer the research question: Do pharmaceutical companies benefit financially from Project Portfolio Management solutions?

In conjunction with the literature review, the research process is used to make an argument and thereby generate knowledge. The list below illustrates the research process of this thesis:

1. Research problem defined and work planned (Research Proposal).

2. Design, method and technique chosen.

3. Knowledge gathering, including collection of secondary data, literature reviewing, composing of questionnaires for interviews and survey.

4. Face-to-face interviews performed and questionnaire sent to survey participants.

5. Writing the dissertation and evaluation.

2.1 Case Study Method

The project is based on a study of Actavis, a generic pharmaceutical company, as an employee the author is personally involved in the systems and processes that are being studied. The Corporate Portfolio Management and Corporate Project Management
functions within Actavis are used as a case to test whether pharmaceutical companies benefit financially from PPM systems and processes. The company has implemented PPM solutions three times in the past six years as the company grew through Mergers & Acquisitions (M&A).

The single case study method is used as Actavis is the only organisational unit being studied. This is an in-company focused project but the lesson learned from this research should be transferable to other pharmaceutical companies and even other industries.

The Case Study method is an approach in which the author uses a variety of techniques to draw on multiple sources of evidence in the workplace in order to explore issues (Robson, 2002). Furthermore, a Case Study method is used to assemble a rich picture of the situation being investigated (Jankowicz, 2013).

A variety of techniques are used to gather information, such as analysis of process documents, presentations and flowcharts from the two functions being studied, i.e. Corporate Portfolio Management and Corporate Project Management, together with face-to-face semi-structured key informant interviews with five employees from the same functions. Key informant technique means that people with specialised knowledge about the research question are selected for interview (Jankowicz, 2013).

The author used triangulation in order to cope with the information gathered. Triangulation means several techniques are used in combination in a search for a consistent pattern of results, thereby increasing confidence that an appropriate understand of the issue being researched has been achieved (Jankowicz, 2013).

2.2 Survey Method

The author also used the survey method whereby questions are directed at a group of people who represent a larger population, in order to gather the views of this population (Jankowicz, 2013). The survey was conducted in order to gather people’s views on Project Portfolio Management systems and to support the argument being presented in this research.

Purposive sampling was used as the author selected survey participants according to their position in the organisation (Jankowicz, 2013). All survey participants were part of
the Corporate Portfolio Management function or the Corporate Project Management function within Actavis.

2.3 Action Research
Action research is also used as the author is an employee of the company and involved in the processes being studied. Many management research projects include actions of the researcher among the topic being studied. To separate the researcher from the subject matter, as required by the positivist approach, is impossible. Action research starts from the researcher community and draws on the academic community as well (Jankowicz, 2013).

2.4 Research Design
The research design is about the way data are collected and analysed to answer the research question put forth. The research design needs to fit the research objective. Research designs that are most useful in business and management research can be categorised into three types: exploratory design, descriptive design and causal design (Jankowicz, 2013).

**Exploratory design:** any research design for exploring which variables pertain, or which issues are important, the better to flesh out one’s research question (Jankowicz, 2013, chap. 3, p. 80).

**Descriptive design:** any research design in which the issues or variables are known and the intention is to describe the relationships between variables, or the details of the issues, systematically, precisely and in detail (Jankowicz, 2013, chap. 3, p. 80).

**Causal design:** any research design in which an attempt is made to establish patterns of cause and effect in the situation being researched (Jankowicz, 2013, chap. 3, p. 80).

The author is using descriptive design, as one form of the descriptive design is the single case study which describes past, present and future (Jankowicz, 2013). Another form of descriptive design is also used in this thesis, i.e. the un-stratified survey which describes views and opinions gathered by the researcher that are turned into facts (Jankowicz, 2013).
2.5 Research Techniques

Research Techniques are step-by-step procedures through which data are collected and which tell you how rather than why something is done (Jankowicz, 2013).

Semi-structured, primary data techniques: research conversations and storytelling, semi-structured individual interviews, key informant interviews and focus groups (Jankowicz, 2013, chap. 3, p. 33).

Fully structured primary data techniques: structured observation, structured questionnaire and structured interview (Jankowicz, 2013, chap. 3, p. 33)

This research has qualitative emphasis and semi-structured techniques were used in order to gather information. The survey is a mixture of open and closed questions that describe views and opinions of participants.

Empirical research is research using empirical evidence. The empirical evidence will mainly be analysed qualitatively.

2.6 Data Collection

Primary and secondary data were collected to answer the research question. The data was collected from April to July 2017. “Secondary data are historical data structures of variables previously collected and assembled for some research problem or opportunity situation other than the current situation. Primary data are raw data and structures that have yet to receive any type of meaningful interpretation” (Hair, Bush & Ortinau, 2006, p. 64).

2.6.1 Secondary Data

Secondary data are previously published data. Internal and external secondary data were collected for this research. Company material was used by the author, such as process documents, business cases, project financials and annual reports, which can all be classified as internal secondary data.

The author used following external secondary data:

➢ Material from PPM solution providers, where the functionalities and benefit of the solutions are detailed.

➢ Material from Forrester Research and the Info-Tech Research Group, which have evaluated the strengths and weaknesses of PPM vendors.
It is important to evaluate the secondary data and make sure it is relevant to the research. It is also important to consider underlying motivation to avoid bias.

2.6.2 Primary Data

Primary data are data that are especially gathered for the research. The author performed qualitative research to collect primary data. Primary data were gathered by interviews and by a survey. The target audience were selected because of their industry knowledge, experience and education. All of them worked for the Corporate Portfolio Management function or the Corporate Project Management function in Actavis.

2.6.2.1 Key Informant Interviews

The data was obtained by face-to-face interviews with five highly experienced project and portfolio management employees in the pharmaceutical industry. Pilot testing was performed on the questionnaire. Notes from the interviews were drafted and sent to the interviewees for comments prior to evaluation in order to avoid interpretation bias.

2.6.2.2 Survey

The author used semi-structured techniques to familiarise herself with the issues being researched before creating the survey using structured techniques. Several semi-structured individual interviews were performed in order to gather more knowledge about the portfolio management process and preparation of business cases.

The questionnaire was created in a tool called SurveyMonkey. The survey consisted of qualitative and quantitative questions. The aim was to keep questions brief, specific and relevant to the research. The survey was sent out to 15 former Actavis employees who are all experienced users of Project and Portfolio Management tools and processes. The survey was sent out on June 26, 2017.

For quantitative questions, answers are predefined which makes it easier for the surveyor to measure the results. The answer options were radio buttons and Likert Scale. Radio buttons are a common quantitative question type used when the respondents need to select a single answer to a question, such as “yes” or “no”. Likert Scale is used for several questions to measure views of the survey participants, such as very dissatisfied, dissatisfied, neutral, satisfied and very satisfied (SurveyGizmo, n.d.). The survey participants choose a single option from a series of radio buttons. An odd number scale
is used to allow for a neutral response. One question in the survey uses check boxes. Check boxes usually appear in a list, like radio buttons, but the question allows for multiple responses (SurveyGizmo, n.d.).

Qualitative questions are open-ended text questions which define a problem: they ask why. In this survey, the answers can be several sentences or essay questions. Reporting on these questions is challenging as the answers need to be read and analysed individually. The sample size of this survey is very small and therefore well fitted for qualitative survey. The analysis requires the author to interpret results and is therefore subject to interpretation bias.

The questions are all related to PPM solutions and processes. In order to avoid combining multiple questions into one, which could skew the data, some questions are broken down into two questions, one on portfolio management and the other on project management.

### 2.7 Reliability and Validity

Reliability: the extent to which your results are repeatable if another person were to collect the data and conduct the analysis; or if another technique were used for the data collection (Jankowicz, 2013, chap. 2, p. 72).

Validity: the extent to which your conclusions are accurate, in the sense that other people would agree that they are true (Jankowicz, 2013, chap. 2, p. 72).

The author used two techniques for primary data collection: a web-based survey and interviews.

The survey was a mixture of closed and open questions. Highly structured closed questions minimise negative influence on survey results whereas answers to open-ended questions are subject to interpretation bias. Web-based surveys eliminate the risk of subject error and subject bias, as they exclude the interviewer who may affect the result of the research.

Five employees were interviewed in order to gather information on processes and to create a richer picture of the two functions being studied, because less structured techniques often provide a broader and richer picture of the issue being researched (Jankowicz, 2013). The interviews were documented and then sent to the interviewees for comments in order to minimise interviewer bias.
2.8 Limitation of the Research

Like any research project, this research has certain limitations that must be considered when interpreting the results.

Material from solution providers and consultancy companies, hired to implement PPM solutions, is focused on benefits of PPM solutions and is likely to be biased as these companies are promoting their products and services. The author found it interesting to analyse whether PPM solutions are providing the financial benefits claimed by the vendors and strives to evaluate actual benefits against claimed benefits.

All survey participants are sharing experience from the same company and from the same system. The participants have experience from other pharmaceutical organisations but few have used other PPM tools than Planisware.

If the survey had been sent to employees of another pharmaceutical company, it would have been possible to use the comparative case study method, as comparative case study is used to compare the company or department being studied with others in a systematic way (Jankowicz, 2013).

One pharmaceutical company is used as a case study, but lessons learned from this research are applicable to other pharmaceutical companies and even other industries.

The research is limited to the corporate functions only.
3 Literature Review Project Portfolio Management

The role of IT is often thought to increase control and coordination, while opening access to new markets and businesses (Ciborra et al. 2000). Companies that manage a number of projects simultaneously need a structured management approach for project portfolios, and PPM has become the tool to implement strategies and to remain competitive (Beringer, Jonas & Kock, 2013). Project Portfolio Management (PPM) is fairly new and research has this far mainly addressed the processes and tasks of PPM (Beringer et al., 2013). The focus has been on what project portfolio management is or should be.

In this literature review the author will place focus on how Project Portfolio Management systems and processes provide organisations with financial benefits and therefore impact the bottom line.

3.1 Project Management & Portfolio Management

Project Management is a process whereby each project is managed independently. The focus is on a single project separate from other projects (Rad & Levin, 2008). A project is defined as “a unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources” (ISO010006).

A portfolio is a set of projects, which are not necessary related, brought together for the sake of control, coordination and optimisation.

Portfolio Management is a dynamic decision process, whereby a business’s list of active new-product (and development) projects is constantly updated and revised. In this process, new projects are evaluated, selected, and prioritized; existing projects may be accelerated, killed, or de-prioritized; and resources are allocated and reallocated to active projects. The portfolio decision process is characterized by uncertain and changing information, dynamic opportunities, multiple goals and strategic considerations, interdependence among projects, and multiple decision-makers and locations. The portfolio decision process encompasses or overlaps a number of decision-making processes within the business, including periodic reviews of the total portfolio of all projects (looking at all projects holistically, and against each other), making Go/Kill decisions on individual projects on an ongoing basis, and developing a new-product strategy for the business, complete with strategic resource allocation decisions. (Cooper, 2011 p. 232)

According to Cooper, two decisions processes must be in place in order to handle the tactical portfolio decisions well, i.e. gates (part of the stage-gate system) coupled with
periodic portfolio reviews. Gates are project-specific and detailed and Portfolio Management is responsible for checking the continued economic viability of the project as the project progresses, based on new more accurate data. Portfolio reviews are holistic as they look at all projects together but in much less detail (Cooper, 2011). The purpose of periodic portfolio reviews is to find out if the projects are strategically aligned; whether the balance of the projects is right and properly prioritised; and last but not least, to decide if there are any projects on the active list that should be killed as these projects are using valuable resources.

Project selection deals with individual projects whereas Portfolio Management deals with the entire set of project investments. The value of a project to a firm depends not only on its properties but also on the other projects being developed by the firm. This is due to interaction with the other projects that require the same resources (Girotra, Terwiesch & Ulrich, 2007).

3.2 Project Portfolio Management & the Idea-to-Launch Process

Project Portfolio Management is a tool to manage new product development projects. An Idea-to-Launch process is a process for moving a new product project through the various stages and steps from idea-to-launch (Cooper, 2011). The Idea-to-Launch process is part of product Life Cycle Management but the life cycle plan moves beyond the immediate launch phase through to product exit (Cooper, 2011).

Effective portfolio management, improved time to market and improved quality in execution are among the main goals of PPM and the Idea-to-Launch process. The process is a cross-functional team approach, as an effective cross-functional project team is needed to develop and launch a new product into a new market - new projects are bound to fail if functions are working in silos (Cooper, 2011). Effective portfolio management must be an integral part of the process in order to keep the right projects in the pipeline, but most companies suffer from too many projects and not enough resources (Cooper, 2011). If development resources are stretched because of working on many projects the project completion times are longer (Girotra, Terwiesch & Ulrich, 2007).
Value of PPM includes:

➢ Do the right projects and cancel the wrong ones.
➢ Focus on important projects and cancel those that do not fulfil requirements.
➢ Visibility and speed, as projects are done faster.
➢ Fostering transparency within the organisation.
➢ Time saved on data collection and report generation.

Implementing PPM means changing the organisational structure to support the formalised process. PPM requires simple, specific business processes to be successful, and involves great effort and investment in order to develop the process and tools. “Having a process mapped out and in place is one thing, but really living the process is something else” (Cooper & Edgett, 2012). The benefits of formalised PPM process are improvement in effectiveness of project teams, lower cost of projects and better competitive positioning (Rav & Levin, 2008).

When implementing PPM systems, PPM processes are not always in place or used consistently across the organisation. When implementing PPM, companies are often hoping to formalise existing processes and templates. PPM implementation is more about process implantation than system implementation. Support of leaders is mandatory for a successful implementation.

3.2.1 Stage Gate
The Stage-Gate process is built into the project schedules that guide new product development projects from idea to launch (Cooper et al., 2012). Certain criteria must be met before projects are allowed to pass into subsequent gates and move along in the development process. Stage Gate has been integrated with portfolio management and is automated in many PPM tools.

Projects should be reviewed by gatekeepers at gates in order to make go or no-go decisions based on input from project team members, such as re-calculation of the business case from portfolio management. “The gatekeepers are the senior people in the business who own the resources required by the project leader and team to move forward” (Cooper, 2009).
Gates are rated one of the weakest points in product development, but termination of projects can be emotional as employees get attached to the projects they are working on (Rad et al., 2008). In some companies, the gates are little more that project update meetings or a milestone check-point (Cooper, 2009).

Over the years the Stage-Gate system has been modified and adjusted by many companies in order to build in best practices. The process is being scaled to suit different types of projects versus a one-size-fits-all model (Cooper et al., 2012). The process needs to be flexible and scalable, i.e. able to adapt to the needs, size and risk of the project.

### 3.3 Project Portfolio Management Systems

PPM systems are centrally shared information systems that allow several project members, even across functions and continents, to share project information and work on project documents concurrently.

PPM solutions first came onto the market in the 1980s, with the release of Harvard Project Manager (HPM) and Primavera Systems. The first versions were targeted to Project Managers but the focus has broadened over the years as vendors and users have realised that up-to-date progress information on projects is required from those working on the projects (Info-Tech Research Group, 2012). PPM systems are evolving and are now being integrated with other business systems (Info-Tech Research Group, 2012).

Analyst firms are independent research firms and regularly publish analysis of their research. Analyst companies, including Forrester, Info-Tech and Gartner, have carried out research on PPM tools, aimed at organisations seeking to select a solution for PPM. These evaluations were based on surveys and interviews with product vendors and customers in order to evaluate the strengths and weaknesses of PPM vendors; the systems were scored accordingly.

The research analyst firm Forrester has calculated the financial benefits of PPM implementations and claims that PPM tool investment is likely to provide a Return on Investment (ROI) of more than 250% (Symons, 2009). ROI measures the amount of return on an investment relative to the investment cost. To calculate ROI, the benefits of an investment is divided by the cost of the investment, and the result is expressed in a percentage. The analysts calculate ROI by estimating the total cost and total benefit of a PPM implementation. The estimates were based on interviews with end users and
technology vendors. The following costs need to be considered in terms of initial purchase:

- Hardware required to run the application. Some vendors offer SaaS deployment, or hosting, which lower company costs in terms of hardware and support. An on-premise solution is more likely to be chosen by companies with strict data governance policies such as pharmaceutical companies.

- Software costs includes the cost of individual modules, user licenses and maintenance fees.

- Implementation costs can be split into external and internal costs. External cost is cost for services provided by the vendors, such as configuration cost and training fees. External cost can also be related to consultants who are often involved to manage and design the PPM process. Internally, there is a cost of resources involved in the implementation, including the cost of information technology employees.

- Support costs as the application needs to be supported by internal employees after implementation.

- Enhancements costs of further development of the tool including rollout of major upgrades.

In order to calculate Return on Investment (ROI), the benefits of PPM need to be measured quantitatively. The benefits calculation should include both revenue enhancement and cost reduction:

- Reduced project failures rate, as decisions to correct or cancel product development projects, with limited return, are taken earlier in the project phase.

- Reduction in successful project cost overruns, as the system assists the project manager to keep the project closer to budget.

- Reduction in project throughput times improving time to market.

- Reduction in the number of low-value projects which take resources from other projects.

- Reduction in administrative time caused by improved transparency across the organisation. Less time is spent on gathering data through automation and centralisation.

For the ROI calculation, it was assumed that the project begins on January 1 of year one and continues until December 31 of year three. A learning curve was applied for the first phase of the operation, assuming that only 80% of the tools benefits were realised in the first year. Benefits and costs of years one, two and three are discounted to get the
present value of benefits, costs and net cash flow (NPV). The ROI is then the NPV divided by the PV cost. The outcome is ROI of more than 250%. The author of this research study is of the opinion that Forrester’s calculations of the ROI are simplified, though the list of cost items and list of benefits provided by the solution are of value and can be used as a guideline when PPM solutions are evaluated. Many companies take a qualitative approach when it comes to determining the value of PPM solutions. Key stakeholders define key benefits of the system in use that are measured qualitatively (Symons, 2009).
4 From Chaos to Structure - Case Study

4.1 Generic Drugs

Actavis is a generic pharmaceutical company. A generic drug is a pharmaceutical drug - typically tablets, capsules, injectables, creams, suspensions, suppositories or ointments - that is equivalent to an originator’s product in dosage, strength, quality, performance, and intended use (Wikipedia Generic Drugs). Generic drugs become available when patent protection expires. In most countries, the inventor of a drug enjoys patent protection for his product for up to twenty years. When this patent expires, a generic version of the drug can be marketed by other companies.

In the generic pharmaceutical industry, it is very important to be first to market with new generic pharmaceutical products when patents expire, as revenue declines rapidly when more players come to the market. “Once generic drugs enter the market, competition often leads to substantially lower prices for both the original brand-name product and its generic equivalents” (Wikipedia Generic Drugs). In the figure below, the product Cetirizine is used as an example of what happens once the original product has lost its patent exclusivity and generic versions of the product are launched.

![Cetirizine Generic Price Decline](image)


Figure 1 Generic Price Decline
(Wikipedia Generic Drugs)
4.2 The Actavis Story

The company was founded, as Pharmaco, by a few pharmacists in 1956. The company was originally a purchasing alliance: its main purpose was to source medicines for the owners’ pharmacies in Iceland. In 1972, the company started the production of generic medicines for the domestic market (Actavis, Annual Report, 2006). For many years the company focused on distribution and production for the Icelandic market only. In 1997 Pharmaco was registered on the Icelandic Stock Exchange.

The company’s international expansion began in 1999 with the acquisition of the Bulgarian pharmaceutical manufacturer Balkanpharma (Actavis, Annual Report, 2006). With the acquisition, the company gained access to markets in Central and Eastern Europe, the Baltics, Russia and the CIS. During the years 2002 to 2004 the company made several acquisitions aimed at establishing the company as an international leader in generic pharmaceuticals. These acquisitions included Delta in 2002; in addition to having a strong third-party sales operation, Delta had previously acquired a manufacturing plant in Malta and a developer in Iceland, Omega Farma. Delta had also invested in the Danish pharmaceutical company UNP, opening access to the Nordic countries. Other acquisitions by Pharmaco were Zdravlje in the Balkans and Fako in Turkey. At the same time, the company invested heavily in organic growth, through robust development activities aimed at bringing the new generic medicines to the market upon patent expiry, building efficiencies in its operations and expanding its sales and marketing network. Following the merger with Delta, the import division of Pharmaco serving Icelandic pharmacies was divested.

Actavis’ competitiveness was structured around being one of the first to market new generic products, when the product patent on the originator’s products expired (Actavis, Annual Report, 2004). The company produced and marketed own products and licenced products under its own name (branded products) and sold products to other pharmaceutical companies that marketed the products under their own name (unbranded products).

In 2004 the company had 7500 employees, operating under nine different identities in 25 countries (Hjaltadottir, personal communication). Mergers and acquisitions were
essential elements in Actavis’ growth strategy and the management felt that in order to truly realise the strengths of the consolidated company and better communicate the true potential of the whole organisation internally and externally, as well as better integrating future acquisitions into the group, rebranding to one powerful brand was essential. In May 2004, the company was rebranded as Actavis Group (Hjaltadottir, personal communication).

The next big milestone in Actavis’ growth story was the acquisition of the human generics business of pharmaceutical company Alpharma in 2005, making it the fifth largest generics company worldwide in terms of revenue, and providing a strong foothold in the US market. Following the acquisition, the company had operations in five continents and strong R&D and manufacturing capabilities (Chu, 2005).

During the following years, companies were acquired to gain access to new markets, specialty medicines and new technologies, and also to increase cost competitiveness (Hjaltadottir, personal communication).

The company was privatised in 2007 when it was taken off the Icelandic Stock Exchange.

As the company grew through mergers and acquisitions and became more international, the company increasingly sought talent and management with extensive international experience. In 2010 significant changes were made to the leadership team and the headquarters were moved to Zug, Switzerland, where 150 employees were based.

In 2012, an international pharmaceutical company headquartered in the US, Watson Pharmaceuticals, acquired Actavis. With the acquisition, the combined company became the third largest generic drug company in the world (Arnum, 2012).

Prior to the acquisition of Actavis, Watson had acquired a few companies, mainly in Europe and Australasia, which were each operating under their original name and identity. As the Watson name was already registered by other entities in most global markets and Actavis had a broader global reach and a vast number of products registered in markets around the world under the Actavis identity, it was decided that the combined company would take the name Actavis, but under a new identity or brand (Hjaltadottir,
personal communication). Its headquarters were based in New Jersey, US, while the office in Zug, Switzerland, became the centre for international sales and marketing.

In November 2014, it was announced that Actavis was going to buy the Botox maker Allergan in a deal valued at $66 billion (Rockoff, 2014). A few months later, in March 2015, Actavis completed the acquisition of Allergan and the combination created one of the world’s top pharmaceutical company by sales revenue (Chen, 2015). Allergan became the name of the combined company, but only a few months later, or in July 2015, it was announced that Teva, an Israeli pharmaceutical company, was going to acquire the generic business from Allergan, or essentially the former Actavis, for $40 billion (Smith, 2015). One year later, on August 3, 2016 the deal went through.

Figure two shows how the company progressed from a small purchasing alliance in Iceland to becoming a global leader in generic pharmaceuticals. Figure three shows how the company grew by mergers.

![Figure 2 Timeline](image_url)

**Figure 2 Timeline: From a small purchasing alliance in Iceland to becoming a global leader in generic pharmaceuticals**

(Hjaltadottir, personal communication).
4.3 Global Launch Management

In 2009 Actavis formed a global function to track product launches. Prior to the establishment of this function, product launches were tracked regionally. Launch Management functions existed in the United States, West Europe and East Europe whereas launch management for Asia, Africa and the Middle East was overseen by the Emerging Markets function. The purpose of the Global Launch function was to keep track of the number of launches and launch revenues worldwide. Launch was defined as:

The introduction of an Actavis product (branded or unbranded) with a unique combination of product attributes (Global INN; dosage form; dosage form detailed) and being sold by Actavis in a country for the first time (Actavis, personal communication).

The function worked with regional launch managers that covered all countries where Actavis was present; the regional launch managers then worked directly with the countries they were responsible for. Excel was used in order to track product launches and launch revenues.

At that time, there was no central data management system or process for data management in place within the company, which made the data difficult to work with. “In business, master data management (MDM) comprises the processes, governance,
policies, standards and tools that consistently define and manage the critical data of an organisation to provide a single point of reference” (Wikipedia Master Data Management). Actavis grew by mergers, and in each company product information was registered according to local standards.

The complexity of Actavis was increasing year by year due to an increasing pipeline created by endless takeovers of other pharmaceutical companies that started with Balkanpharma in 1999. Actavis lacked a systematic decision-making process with common decision parameters. The business was suffering from lack of transparency on future projects coming from Research & Development (R&D) and Regulatory Affairs (RA) which were to be launched in markets around the world. This lack of transparency made long-term planning (3-5 years) and even the budgeting process (12-18 months) cumbersome and created problems for functions such as Operations, Sales & Marketing, Quality and Finance.

The company was managing over 100 geographic locations and over 3,000 launch opportunities at any time, or over 500 launches annually.

![Total Launch Count](image)

**Figure 4 Actavis Launch Count 2007 – 2010**
(Numbers from internal Actavis database)

In order to plan a successful product launch, long-term planning is essential. Country launch managers were planning launches of products 12 to 18 months in advance, which was often too late to secure a successful launch.
Extensive coordination was required to manage launches down to markets. The company was dealing with over 50 countries in Europe alone. Different market dynamics needed to be dealt with. Different languages require different artwork material, such as packaging and labelling. The company was managing both branded and unbranded generics. Generic product entry can vary due to different patent rules in different countries as the pharmaceutical industry is excessively patent protected. Intellectual Property is handled down to national level, so a product that is to be launched in several countries can have different launch dates all depending on the patent restrictions. The regulatory environment is very demanding: one product that is going to be launched in several countries can require different regulatory procedures.

In 2010 the management board of Actavis was partly renewed and it was decided to move the company’s headquarters to Zug in Switzerland. The new management board wanted to implement an end-to-end process for Portfolio and Project Management, as well as a tool to support the process. The Idea to Market project was one of three top management initiatives and the purpose was to align portfolio management and product launches at a global level.

4.4 Idea-to-Market

In 2010 the first step was taken to transform launch management from chaos to structure by creating full transparency of the status of projects and launches.

At this time McKinsey & Company was hired to create an end-to-end process from project selection to product launch, along with aligning interaction and providing communication guidelines on a clear decision-making basis. The process was named Idea-to-Market. This process is usually named Idea-to-Launch and is part of Life Cycle Management, which aims to get the right products to the right markets on time.

Below is an overview flow-chart of the process phases implemented by Actavis, with stage-gates set during phases and scheduled reviews through the process.

Figure 5 The Project Lifecycle Process
(Actavis, personal communication)
The Idea-to-Market process was initially very thorough but portfolio and project management processes got adjusted and simplified over time. The next step was to find a tool to support the process.

4.4.1 Corporate Portfolio Management
The Corporate Portfolio Management team at Actavis was formed in 2010. The team was responsible for the selection process and the portfolio evaluation within the company and was part of Business Development. The organisational project selection process was created and documented for Actavis as part of the Idea-to-Market process created by McKinsey & Company.

Pharmaceutical companies need to position themselves in the market by setting overall business strategy and portfolio evaluation, though they must be in line with the overall strategy. This includes deciding what kinds of products will be offered and what kind of marketing strategy will be followed. Business processes are then based on the overall vision of the company.

Corporate Portfolio Management had the responsibility of ensuring a balanced portfolio in terms of risk, investment, value, technical difficulties, etc. The Corporate Portfolio Management team prepared business cases for products that were eventually launched in different markets at different times depending on patent dates. A few years can pass from approval of a business case to the actual product launch.

4.4.1.1 Selection Process
Generic pharmaceutical companies track information on products coming out of development from innovator companies. At Actavis, this was called Innovator Tracking and information on new products was inserted into a database. It varies between companies how near or far into the future new opportunities are tracked.

New product development in the pharmaceutical industry is regulated and goes through defined steps. The final step is three stages of clinical trials, or trials in human subjects (phases I, II and III). Phase III is the final stage in the development process where the drug is investigated on a large sample of patients (Girotra, Terwiesch & Ulrich, 2007). Some generic companies are viewing new products from originators as soon as they have a successful phase-III study or even earlier, as “the results of each stage of the
development process are public knowledge” (Girotra et al., 2007). The focus in Actavis on the evaluation of new opportunities, was relatively short term and little effort was spent on opportunities that were far in the future. Opportunities were usually tracked from Market Authorisation approval of originator products. A Marketing Authorisation is granted following a “process of reviewing and assessing the dossier to support a medicinal product in view of its marketing (also called licensing, registration, approval, etc.)” (Wikipedia Marketing Authorization). “This process is performed within a legislative framework which defines the requirements necessary for application to the concerned (competent) regulatory authority, details on the assessment procedure (based on quality, efficacy and safety criteria) and the grounds for approval or rejection of the application” (Wikipedia Marketing Authorization).

Portfolio Management for pharmaceutical projects starts with an idea that is evaluated by several functions, including the markets prior to the preparation of a business case. For instance, the origin of the idea could be from IP evaluation (patent expiries), new launches from innovators (Innovator Tracking), requests or ideas from markets, life-cycle management evaluations, or offers from third parties (in-licensed). The markets could also express interest in a finished product that had been launched in other markets; these approvals were classified as Territory Expansion.

The Corporate Portfolio Managers (PoM) had responsibilities for specific regions and therapeutic areas such as oncology, cardiovascular, pain products, etc. The PoM responsible for the relevant therapeutic area was then responsible for evaluating a project within that therapeutic area and for creating a business case.

The process would start with a request from the PoM team to the Head of the Intellectual Property team (IP) for a preliminary evaluation of the IP situation, which gives guidelines on timelines and high-level information on the IP landscape. Product launch days would depend on the patent landscape in every single market, but once a product is off-patent it can be launched by other companies as well. The portfolio manager needs to know when it is possible to launch a product in order to put together a business case.

The role of the PoM was to align stakeholders in a matrix organisation and get input from all functions on the product to be evaluated. The PoM’s role was to influence other
functions to come up with the products that fitted the Actavis strategy. The business case process was then used to funnel ideas through evaluation and final approval.

4.4.1.2 Business Case

The business case needs to contain all of the information required to make a decision about the product, such as strategic fit, investment needs, timelines, financial benefits and risks. This requires input and alignment from the following functions:

- IP
- Legal
- R&D or In-Licensing
- Regulatory Affairs
- Operations
- Sales & Marketing (sales force is needed to roll out the products in the markets)
- Launch Management

Part of the commercial assessment involved going to the markets to get their input. If the opportunity was a standard one, this input came from the Corporate Sales & Marketing team at the original approval stage, as they and the PoM know the market. For opportunities that were less standard or close in time, such as in-licensed (IL) opportunities, the markets needed to provide forecasts.

Top-down forecasting was used for project approval. Bottom-up forecasting was used to estimate the total volume and value closer to launch. The market (local) portfolio managers were responsible for evaluation of their respective market and then all estimates were compiled by the PoM responsible for the opportunity in order to have total volume and value.

The business case was based on timelines from specialists. Estimated development time came from the R&D function but development time of generic products varies based on complexity. The timespan for IL projects is significantly shorter, primarily due to either a shorter or no R&D phase, as IL projects are usually initiated closer to dossier completion or after availability of dossier. If the opportunity was an in-licensed product, commitment was needed from the markets before a contract was signed with a third-party producer.
For R&D projects, the initial business case was often done for main markets only. During the development phase, closer to dossier completion and planned submission, the business case was updated and markets were either added to the business case or excluded, if the product was no longer of interest to them or not viable. Various reasons could lead to such changes, such as longer lead time in R&D and RA phases causing launch delays, changes in pricing, changes in market environment or lack of interest from the markets.

The actual business case numbers are then calculated at the end of the assessment.

### 4.4.1.2.1 Financial Parameters

The business case calculation was based on Net Present Value (NPV) and Internal Rate of Return (IRR) calculations. First year of investment was the base year for the main NPV calculation while the year of the first main launch was the base for the five years of forecasting period. Ideally the investment should have positive NPV by year three after product launch.

The local Portfolio Manager estimated the size of the originator market and how big the generic portion would be from that market. Then the Actavis share of the generic market was estimated, giving the assumed volumes of Actavis sales. Using the current market price (per unit) and the expected price erosion the Portfolio Manager would then come up with the estimated selling price and thereby conclude on the expected sales in value (EUR). The calculation where down to strength, but shown in the business case as total sales for the relevant country. The system however allowed for each market to be viewed in more detail. The markets could also include any expected marketing expenses or other cost.

Cost of Goods Sold (COGS) was based on API (active pharmaceutical ingredient) prices, but for high level top down business cases could also be calculated as percentage of sales and depending on the product, a COGS level of high, medium or low could be specified.

The project cost calculations were compiled from the development cost, registration cost and IP/legal cost if relevant.

Floor Price was the lowest acceptable selling price of the product in order for the product to be viable in the market.
Qualitative assumptions down to country were also part of the business case module. These assumptions could include information on the development of the originator’s market, market share, price erosion and risk of competition, to name a few.

The Business Case Model was reviewed annually and parameters such as discount rate were adjusted as required.

**4.4.1.3 Pipeline Committee Meetings**

New projects were brought to senior management for approval in Pipeline Committee (PC) Meetings, where focus was on product selection and prioritisation. Before presenting the business case to senior management for approval, the Portfolio Manager would usually have pre-meetings with all stakeholders to make sure functions were aligned and the product’s pluses and minuses understood. Portfolio employees presented the business cases with a clear recommendation and answered questions and then it was decided by upper management to approve or reject the project. If the conclusion was that further information was required to come to a final decision, the decision would be postponed until the next meeting.

**4.4.1.4 Portfolio Evaluation**

Overall review of the total pipeline was not done systematically, even if that was initially intended. Reviews of the total portfolio were mainly driven by need rather than a standard process. Due to frequent changes, the portfolio was reviewed on an ad hoc basis, mainly when the company was doing cost-cutting exercises or as part of mergers and acquisition activities.

Single projects were evaluated as they progressed or at pre-defined stage-gates. Project reviews were built into the project schedules and projects were reviewed by portfolio at pre-defined gates, such as prior to the transfer of the project from R&D to Regulatory. When R&D work was about to be completed and, the dossier finalised for the registration process, the business case was reviewed by PoM. This was done as registration is an expensive process and it is important to identify which markets should participate in it.

The projects were also reviewed by portfolio before major spending, such as the purchase of new equipment. The projects were also reviewed at less defined points,
where there might be changes to the value because of changes in the market or changes in the company strategy. Project reviews were also performed by PoM on an ad hoc basis:

- If IP landscape changed. If the opportunity was relying on a challenging IP situation.
- If product was running late due to problems or delays in R&D or Regulatory timelines.
- Other changes, such as changes in dosage form from the originator (e.g. powder was changed to liquid) that made the product less competitive.
- Price erosion that dramatically changed the marketing potential.
- Price erosion that excluded some markets from the launch.

PoM needed to be informed whenever changes affected the planned launch date in any relevant country. PoM and CPMs (Corporate Project Managers) had the authority to bring specific projects to Pipeline Committee meetings at any point in time.

4.4.2 Corporate Project Management

The Corporate Project Management team was also formed in 2010 as part of the Idea-to-Market process and replaced the Global Launch Management team. The Corporate Project Management function was part of Business Development, as was the Corporate Portfolio Management function. Projects were managed by one Corporate Project Manager (CPM) from project approval to product launch.

When a project was approved by the Pipeline Committee Meeting (PCM) it was allocated to a CPM. Each CPM could have up to 20 projects to manage at any time but these projects would be in different phases and the workload would vary between projects. The Corporate Project Manager was responsible for overall coordination and monitoring of a project as well as management of the Core Team created for each project. The CPM was not to get involved, or giving recommendations, in content work of expert departments such as R&D and RA. The CPM’s role is described below (Actavis, personal communication):

- Guiding projects from introduction to main country launches.
- Key contact person for all project-involved people outside of virtual project team.
✓ Tracking of project status with help of Planisware, and follow-up on outstanding activities.

✓ Aggregating information updates and feedback from departments.

✓ Coordinating cross-functional project teams and facilitating discussions and exchanges of information between departments.

✓ Reporting of project status and pipeline situation in Pipeline Committee Meetings and departments.

The Stage-Gate process was built into the project schedules, which meant that certain criteria had to be met before projects were allowed to progress further in the process.

4.4.2.1 Core Team
A successful project launch requires the collaboration of all departments and the Core Team carried the end-to-end responsibility from approval to successful closure to prevent lack of accountability. A Core Team served as a forum to discuss changes and/or problems of products before escalating to top management. The Core Team members were proactively responsible for their functions and timely execution of all related deliverables and information exchange.

The CPMs were responsible for Core Team Meetings. The Core Team Kick-off Meeting was the official starting point and first briefing of assigned project team members on roles and responsibilities. In this meeting, the project would be mapped out, rough timelines set and main milestones agreed. The initial project schedule would then be created as a baseline for the project in Planisware. As the project progressed, different functions got involved. The Production Site Launch Manager was invited to the Core Team as soon as the manufacturing site was confirmed. Each project team member’s involvement varied throughout the Idea-to-Market process. Stakeholders in the process are listed below:
Planisware

First Implementation of Planisware

In 2010 Actavis searched for a Project Portfolio Management tool to manage projects from idea to launch. Planisware is a global provider of project and portfolio management solutions for new product development organisations. It has been adopted by many of the world’s largest pharmaceutical companies, both across the entire organisation or for use in selected functional areas (Planisware, 2017). Planisware provides users with a set of tools to evaluate opportunities, selected projects need to fit overall strategy and deliver a strong Return on Investment (ROI). The system provides visibility on the entire portfolio. Planisware is a web-based tool which allows matrix organisations to share project information while also allowing multiple functions to work on the same project at the same time. Scheduling and information-sharing is critical in drug development as pharmaceutical projects involve risks that span across the whole organisation and every small detail can have a major impact on the project’s outcome. Actavis implemented Planisware in 2011 and the system was split into two parts:

- **Opportunity Module** for Corporate Portfolio Management, for creation and management of business cases.
➢ **Project Management Module** for Corporate Project Management to manage projects from approval to launch.

The business cases were created and stored in the Opportunity Module. The local Portfolio Managers had direct access to the system and could access all business cases for their respective country. They were responsible for giving their forecasts by estimating the volume and value for their market, but could not see data given by other markets. At the same time, Corporate Portfolio Management had complete overview of all markets when compiling the business cases and the option of looking at the combined data as well as specific details down to market. It was also possible to use the Opportunity Module to create different versions of the business case, using different assumptions in order to estimate how sensitive the project was to changes.

The objective of Planisware was to centralise detailed information for all products, including launches down to markets. Planisware is widely used by Pharmaceutical companies for R&D projects but it is less used for overall management of projects down to a launch in a single market. According to Forrester Research over 40% of the top 50 R&D spenders worldwide use Planisware solutions to manage their projects and portfolios (Visitacion & Barnett, 2015)

Planisware was implemented in order to provide full transparency of the status of projects and launches at all times. It was used for end-to-end product development lifecycle. The tool was intended to connect and align corporate functions and the markets. Product information from Portfolio Management and status information from R&D and Regulatory became available to Launch Managers in the markets. To have the R&D and Regulatory status of all projects available in one system made planning of country launches much more manageable and effective.

The system was pre-populated with project schedules referred to as templates. The templates were created together with relevant business functions, such as R&D, In-Licensing (IL), RA, Planning and Launch Management. The templates were constantly being reworked and improved during the first year of the live system.

The implementation started in January. By May 2011 the Project Management module was up and running, but it should be noted that customisation of this module was kept
to a minimum. The Opportunity module was available much later or in December 2011 but it was significantly customised and constructed to Actavis needs.

From the start, there were 200 live projects in the Project Management module, all in different phases, and each project was managed by a Corporate Project Manager (CPM) throughout the whole lifecycle of the project. Each project could have several launch phases as it could be scheduled to be launched in several countries. Each project consisted of three main project phases: An R&D Phase, if own development, or In-Licensing Phase, if dossier was licensed from another company; a Regulatory Phase, and a Launch Phase. Each project was broken down into milestones and tasks that could be several hundred, depending on the number of countries participating in the product launch. In this early phase of Planisware, over 3,000 launch opportunities were managed in the system.

The system provided a comprehensive view of projects that were spread across research and development centres worldwide and were to be launched globally. The system provided transparency across functions down to a single launch in every country.

A central approach was implemented in order to provide full transparency of status of projects and launches. This central approach provided a great sense of ownership for the projects and provided good visibility of all project issues for escalation. The CPMs were responsible for creating and maintaining the project schedules based on input from other functions. The system also served other functions such as R&D, In-Licensing, Regulatory and Global Planning.

The project was tracked during its lifecycle and the schedule updated to reflect the actual status of the project. Reports such as project management reports and milestone reports, together with project schedules, were created out of Planisware.

When the projects entered the launch phase, communication between the CPM - who had the overall view of the project - and the markets of countries launching the product, became more important.

4.4.3.2 Second Implementation of Planisware

In 2012 Actavis was bought by an American company, Watson Pharmaceuticals. Watson was using another solution, called Planview, for Project Portfolio Management. After a thorough evaluation process, a decision was taken to implement Planisware for the
combined company. The second Planisware implementation started in 2013. In 2014 the system was fully implemented for over 300 users in Portfolio, R&D, Regulatory and Launch Management. One system was used worldwide but the US was not part of the first implementation.

A functional approach replaced the central approach, with each function being responsible for updating their part of the project schedule in Planisware and reporting of project progress. For Corporate Launch Management, this changed the approach from detailed overview and follow-up of all launch projects to a more high-level view and strategy setting of the overall pipeline. The new approach provided a great sense of project ownership within each function but the one-point-of-contact-approach was lost.

A new project structure was implemented to serve the new setup of clusters within Actavis International (excluding the US). Countries were grouped into clusters and each cluster had a dedicated Cluster Launch Manager.

The new project structure consisted of one parent project and several sub projects or cluster projects. The parent project contained R&D (or IL) and Regulatory activities while the sub projects contained launch phases for all countries within that cluster that were planning to launch that particular product. Each launch phase had inter-project links to the main project (parent project). By linking the launch phases to the R&D and Regulatory project milestones, changes in the earlier project phases (R&D and RA) were automatically reflected in the timelines of the launch projects.
4.4.3.3 Third Implementation of Planisware

In July 2015, it was announced that Teva was going to buy the generic business of Allergan (former Actavis). On August 3, 2016, the deal went through and Actavis became Teva. Teva has been using Planisware since 2013 for Portfolio and Project Management. In January 2016, super users from all functions from both companies met in order to compare processes and discuss future needs of Planisware. A User Requirement Specification document was prepared with input from all functions currently using or about to use Planisware. When these lines are written, the third Planisware implementation is in progress to combine the processes of both companies and to cover the total pipeline of Teva and Actavis.

4.4.4 Other Support Tools & Processes

4.4.4.1 Master Data Management

The Master Data Management (MDM) function was formed in 2010 with the aim of defining global attributes and standards to use when registering product information in all company systems. Before this, there was no central data management system or process for data management in place within the company, which made it difficult to work with product data.

To be able to register products in the MDM Portal, all information regarding the attributes INN, Dosage form, Dosage form detailed, Strength, Container, ATC-code, Dossier origin and Product origin had to be available. The INN accorded to WHO standards. The dosage forms were defined according to Standard Terms by the European Directorate for the Quality of Medicines (EDQM).

Data management played a major role in the transformation from chaos to structure within Actavis. Implementation of Planisware and the Launch Database would have been impossible without the Master Data Management function and processes in place.

4.4.4.2 Launch Database

When the Global Launch function was established in 2010, its employees were responsible for the tracking of launches and launch revenues worldwide. In 2011 the Launch Database (LDB) was created internally. The LDB was a market-driven database that contained all actual and planned launches down to strength - in Planisware, one project could contain several strengths but was still managed as one project.
When a project was approved by the Pipeline Committee it was set up in the LDB and allocated to the approved markets. All international markets (excluding US) had access to the LDB. Flow of forecasted launch dates from Planisware into the LDB provided the market launch managers with expected timelines of the launches and made it possible for these managers to plan their local launches accordingly. This was possible as the name, or project code, of the project in Planisware and the LDB was the same. Market launch managers were then responsible for entering planned launch dates into the launch database, based on the estimated launch date from Planisware and taking local market circumstances into account. When launches materialised, these managers were responsible for entering the actual launch date into the LDB. The LDB was linked to the internal corporate website and information on all materialised day-one launches went from the LDB onto the intranet site, which made the launch visible to all company employees and showed the importance of day one launches to the whole company.

As Planisware was used as a project management tool, the Launch Database was a database that kept information on all international (excluding US) launched products and all planned launches. The markets launch managers did not have direct access to the Project Management Module in Planisware but got information on all approved projects for their market as well as information on project progress through the LDB. However, they were dependant on information from one system only in order to prioritise and plan their launch activities. The market launch managers also used the LDB as a basis for preparing the budget for new products, as the database gives long-term visibility on the product pipeline.

**4.4.4.3 SharePoint**

Planisware is software that comes with licence costs and was therefore accessible by selected functions and employees only. It also requires some basic training in order to be of sufficient use for employees. In order to limit the number of licences needed and to keep all project documents in one place, a SharePoint site was set up. The document library was structured to fit the project structure within Planisware and the Planisware project name, or project code, was used to name the project folder that contained all project-related data such as Core Team Meeting minutes. Over 400 Actavis employees were relying on information from this site.
4.4.4.4 Top Projects

The system provided transparency on all projects. But as the number of projects grew it was important not to lose focus on the most valuable projects in the pipeline. Pipeline projects are not equally important, e.g. due to value or timing aspects, and need to be prioritised. Corporate Project Management worked closely with Corporate Portfolio Management in order to identify the most valuable projects, or so-called Top Projects.

The prioritisation was based on financial calculations (NPV) as well as qualitative factors, such as strategic fit. The projects on the Top Project list were re-evaluated quarterly and the updated list sent to upper management and functional heads in order to make sure that focus was kept on the most valuable projects at all times.
5  Research Analysis

The aim of the research was to gather views on the Project Portfolio Management system and process, implemented by Actavis, from pharmaceutical industry experts who worked with the system and process in order to answer the research question: Do pharmaceutical companies benefit financially from Project Portfolio Management solutions?

This chapter should answer the research question above, including the following questions:

➢ Does PPM add value to the business?
➢ Does the tool support Portfolio Management?
➢ Does the tool support Project Management?
➢ What are the main benefits of using PPM tools?

5.1  Key Informant Interviews

Part of the research process was to interview five Actavis employees from the Corporate Portfolio function and the Project Management function in order to gather information on the PPM process and system and to create a deeper understanding of the two functions being studied. The business impact of the solutions and processes was discussed in semi-structured interviews. The results can be sorted into the following categories:

➢ Business Improvements
➢ Lessons Learned
➢ What we Missed

5.1.1  Business Improvements

5.1.1.1  Transparency

The system, together with the Idea-to-Launch process, allowed Actavis to build a comprehensive view of projects that were spread across research and development centres worldwide and were to be launched in multiple countries. All business cases from
Corporate Portfolio Management were stored in the opportunity module of the system and all approved projects were stored in the project management module of the system.

The system provided transparency down to a single launch in every country, as all information on the projects was in one database. All functions were working with the same data. Information from R&D and RA was always available for Launch Management to encourage agile project management, as launch preparation started when the project was still in the R&D phase. Agility is an approach that enables organisations to be responsive and better able to seize opportunities in a rapidly changing external environment (Berlin, Smet & Sodini, 2017). By implementing a tool across functional areas, employees gained broader understanding of other functions.

5.1.1.2 Efficiency & Automation
The process together with the tool increased organisational efficiency, by shortening the time from idea-to-launch and by saving employees time on information gathering and manual reporting.

The system provided automation and standardisation, giving status reports on individual projects as well as allowing the complete pipeline to be reported in a matter of minutes. Before the system was implemented, these tasks would have taken days to complete. R&D employees could prepare presentations on all projects in the R&D phase by pressing a button. Preparation for R&D Status Meetings had previously meant creation and manual updates of Power-Point slides on every single project in development. The information had previously to be gathered from R&D Project Managers in numerous development centres around the world, but could now be generated directly out of the system.

5.1.1.3 Market Focus
Planisware gave the markets a clearer long-term view on the pipeline, as long-term planning is essential in order to plan a successful launch.

The market portfolio managers could access and review all business cases for their respective markets.

Estimated launch dates from the system were loaded into the LDB which was used by all market launch managers. All changes to the timelines were reflected in the system.
This way, the market managers could see when the product was available for launch and could plan launches accordingly.

In Actavis, market input played a decisive role from beginning to end of the project as Corporate Launch Managers and Corporate Portfolio Managers worked closely with the market managers during the whole lifecycle of the project.

5.1.2 Lessons Learned
Planisware is a major program spanning multiple functional areas and locations. Different functions have different needs, even though they are all aiming towards the same goal: to roll out a new product to various markets.

Processes between functional areas and between regions need to be aligned. This can prove difficult as functions and regions have different requirements. A good example here is the difference between launch management in the US and Europe. The US is handled as one project while European launches need to be managed down to markets. What might be needed by R&D might not be important for Launch Management and can cause conflict for resources.

Lack of program oversight and adherence to program guidelines may impact consistent use of the tool and isolated changes to the process or the tool can adversely affect other areas.

5.1.3 What we Missed
5.1.3.1 Tracking of Project Cost
The focus was more on speed rather than cost. The goal of Actavis was to be first to market a generic drug, as revenues decline rapidly when more players come to the market.

The actual cost of individual projects was not tracked in the project management part of the system. The actual R&D cost against projects was tracked separately but the overall cost of the project was not tracked in the system.

5.1.3.2 Connection to Other Systems
The initial idea was to connect Planisware to other tools within the company, to save employees from looking up information in many systems and transfer information manually between systems. However, this was not completed.
Planisware was not connected to the MDM system. Product names and definitions were only loaded into the system once approved by MDM, in order to make sure all business opportunities and approved projects were correctly defined in the system. This made it possible to link data from Planisware to other systems such as the Launch Database. Updates in MDM had to be manually transferred into Planisware.

Information on patent expiry dates was kept in an Excel file which could be accessed by relevant employees on the intranet. Corporate Project Managers had to look this information up and insert patent dates into their project schedules manually. Later, this information got implemented into the LDB, which was a big improvement, as expected launch dates from Planisware together with patent expiry dates from the Intellectual Property department could be compared in one system.

The project schedules indicated when Corporate Planning required volume information in order to have the manufactured product available in time for a launch, but Planisware was not directly linked to the Corporate Planning tool. Information was taken out of the system on a regular basis and compared against the planning tools to see if forecasts had been provided as planned or not.

5.1.3.3 Utilisation of Functionalities
Planisware was not fully utilised and some standard functionalities were never put into practice. A good example is the risk management module of the system which is very good and easy to use.

5.1.3.4 Post-Launch Reviews
Post-launch reviews should be set up in a systematic way to provide continued learning and improvement of the Idea-to-Market process (Cooper, 2011).

The actual value of product launches was always to be compared against the initial business case, but was never completed in a systematic way due to various reasons, such as several mergers and acquisitions and lack of manpower.

Estimated timelines from the business case were not systematically compared to actual project dates as the project progressed. However, the initial timelines in Planisware, which were based on the business case and information gathered from core team members during the kick-off meetings, were saved as the Initial Baseline in the project schedules. When the project progressed to the Launch Phase a new baseline was
saved, called the Launch Baseline. As the project progressed, the actual and planned activities were compared against these baselines. This functionality was called the traffic-light report; tasks and milestones that had green signs were on track, but if the actual timelines were behind schedule the sign was red.

5.1.3.5 Support Functions
When PPM is implemented it must have a support function. It varies a great deal between companies implementing PPM how big these support functions are. The first PPM implementation suffered from lack of dedicated IT support personnel with sufficient practical experience. This was improved during the second implementation. However, the IT support function was then located in the US, which often caused problems for employees in Europe due to different time zones.

5.1.3.6 Senior Management Expect More
Implementation of new processes and systems requires management support. During the first implementation, senior management were expecting more from the system than they were willing to put into the system, i.e. IT support and consultancy from external companies. Expectations are based on information from product vendors, which is only realistic if a lot of effort and manpower is put into the system.

5.2 Survey
A questionnaire was sent, via e-mail, to 15 former Actavis employees who are all experienced users of Project and Portfolio Management tools and processes. Out of the total sample, 9 former employees belonged to the Corporate Portfolio Management function, or 60%, and 6 employees belonged to the Corporate Project Management function, or 40%. The survey was sent out on June 26, 2017 and responses collected over three weeks. The response rate was 87% as 13 former employees responded to the survey. One opted out as he felt too long a time had passed since he used the system and one did not reply to the participation request. Both of these employees used to belong to the Corporate Portfolio Management function. Out of those who responded, 54% belonged to the Corporate Portfolio Management function and 46% to the Corporate Project Management function. The response rate for individual questions varies but it was not mandatory to answer all questions. The response rate to closed questions was higher than to open-ended questions.
The survey contained a mixture of twenty structured and open-ended questions and can be found in Appendix 1. Appendix 2 contains tables which show the outcome of all twenty questions, the response rate to each question and a list of all answers to open-ended questions. The questions can be sorted into the following categories:

- Question 1 is to confirm that the participants have used PPM tools.
- Question 2 asks respondents to select which functions were responsible for the usage of the tool within the organisation.
- Questions 3 and 4 relate to how satisfied or dissatisfied participants are with the PPM tool used.
- Question 5 asks participants to rate the PPM solution’s financial management capability.
- Questions 6, 15 and 16 are “yes” or “no” questions. Some of these questions also include open-ended questions, like asking for clarification.
- Questions 7, 12, 13, 17 and 18 are “yes”, “no” or “don’t know” questions. Some of these questions also include open-ended questions, like asking for clarification.
- Questions 8, 9, 10, 11, 14, 19 and 20 are open-ended questions.

5.2.1 Survey Results & Analysis

5.2.1.1 Does your organisation use Project Portfolio Management tool?

![Graph showing survey results](image)

Figure 7 Does your organisation use Project Portfolio Management tool?

All participants in the sample belonged to Corporate Portfolio Management or Corporate Project Management in the past. The two that answered “no” are currently working for pharmaceutical companies that do not use a PPM tool.
5.2.1.2 Please select the functions that are responsible for the usage of the tool within your organisation

This was the only question in the survey that allowed for multiple responses, which explains why the total outcome is not 100%. It is interesting to see that even though the employees have all used the same PPM tool and processes, the answers vary a great deal. All but one select Project Management and all but two select both Portfolio Management and Launch Management. What can explain this difference is the different approach between implementations. In the first implementation, Corporate Portfolio Management and Corporate Project Management were the only functions responsible for updating the system based on information from other functions. In the second implementation, Actavis moved from a central approach to a functional approach and different functions had the responsibility of updating their part of the project. Planisware was then used by all functions listed, including Regulatory Affairs, whereas IT was a support function.

Figure 8 Please select the functions that are responsible for the usage of the tool within your organisation
5.2.1.3 How would you rate the PPM system in relation to supporting portfolio management at your company?

When asked to rate the system in relation to portfolio management, only one person is very satisfied but nine are satisfied. Three employees select neutral, which is neither satisfied nor dissatisfied but it needs to be noted that two of these employees used to belong to the Corporate Project Management function and were therefore not active users of the Opportunity Module. CPMs used the Opportunity Module in very limited ways. The module stored all business cases and CPMs would normally gather information from business cases directly from the PoM; these functions worked closely together and were located on the same floor in the Actavis office in Zug, Switzerland.

![Figure 9 How would you rate the PPM system in relation to supporting portfolio management at your company?](image)

5.2.1.4 How would you rate the PPM system in relation to supporting project management at your company?

When asked to rate the system in relation to project management, four are very satisfied and eight satisfied with the functionalities of the system. One is neutral and was part of the Corporate Project Management function, therefore the rating can not be explained by lack of involvement in this module. It is interesting to see that out of the four that are “very satisfied”, three belonged to Corporate Portfolio Management. This function used this module in order to gather information on project status but at the same time they
were not responsible for updating the module. It is concluded that the employees were satisfied with the support the system provided, and that concluded that employees were slightly more satisfied with the Project Management module than the Opportunity module.

![Bar chart showing satisfaction levels](image)

**Figure 10** How would you rate the PPM system in relation to supporting project management at your company?

**5.2.1.5 How would you rate the PPM solution's financial management capability?**

When asked to rate the solution’s financial management capabilities, only one person thinks that the system had very comprehensive capability whereas four selected comprehensive capability. All of these five belonged to the Corporate Portfolio Function so it can be concluded that the majority of that function, or just over 70%, thought that the system had comprehensive financial management capabilities. Eight respondents are neutral, or over 60%. However, it needs to be noted that six of those, or 75% of those who selected neutral, belonged to the Corporate Project Management function that did not use the financial management capabilities of the system - which would explain this rating.
Some participants from the Corporate Project Management group explained that the system had not been used to track project finances. Two PoMs mentioned that the system covered all the necessary basic forecasting tools for generic pharmaceutical companies such as NPV, IRR, Discounted Payback Period, Working Capital Calculations, etc.

**5.2.1.6 Does the tool add value to the business?**

This figure speaks for itself. All participants scored “yes” and it is concluded that the tool added value to the business.

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**Figure 11** How would you rate the PPM solution’s financial management capability?

**Figure 12** Does the tool add value to the business?
Ten of the respondent explained how the tool added value to the business. Most comments were related to transparency on projects and standardisation of processes. All information is kept in one place, accessible to all stakeholders, and decision-making is faster as time is saved on information gathering. The system allows for reporting of the total pipeline, which minimises the risk of wrong prioritisation caused by missing data. It is also mentioned that the responsibilities for maintaining the project data need to be clear and strictly adhered to. One former employee of the Corporate Portfolio Management function stated that better planning and prioritisation for five projects only could bring millions in savings and higher profit.

5.2.1.7 Did the vendor provide consulting or input that shaped the future of portfolio management in your company?

The results for this question are very distributed. If only answers from Corporate Portfolio Management functions are reviewed, five say “no” or “don’t know”, or over 70%, while only two say “yes”, or less than 30%. It can be concluded that the vendor did not provide consulting or input that shaped the future of portfolio management at Actavis, according to the employees of that function only. However, it needs to be noted that McKinsey & Company were hired to document the Idea-to-Launch process for Actavis, based on input from stakeholders. It would have been interesting to see the results if the question had related to the consultants rather than the vendor.

![Figure 13 Did the vendor provide consulting or input that shaped the future of portfolio management in your company?](image)
5.2.1.8 Why did your organisation invest in PPM tools?  
In 2010 McKinsey & Company was hired to create an end-to-end process from project selection to product launch. Many respondents named supporting of processes and the need for data management as the main reasons for the investment in the tool.

As the company grew and the number of projects increased, there was a clear need for managing projects in a systematic way in a tool accessible to all stakeholders, in order to create visibility on the status and progress of projects and to make sure that the company would hit its targets. Many respondents named the need for real-time data as the reason for the investment, or “one version of the truth” as one respondent stated.

The purpose of the tool was also to gain clarity on the total pipeline, but too much time was spent on information gathering in order to calculate the value of the pipeline. One respondent also mentioned significant return on investment.

5.2.1.9 Describe the Portfolio Evaluation and Selection Process in your company

New opportunities come from various source, including the Project Idea-Pool, therapeutic area analysis, IP analysis, from In-Licensed sources or as requests from market portfolio managers. Evaluation of new opportunities was done by Corporate Portfolio Management, in cooperation with relevant functions such as R&D for in-house developments, IP for all projects, the IL team for external offers, S&M for commercial interest, etc. Input is collected from stakeholders, leading to a business case with recommendations. All projects were then brought before an approval meeting with all stakeholders and decision makers, including upper management. The first step of the project evaluation was to trigger high level IP screening, financial evaluation (usually top-down for early evaluation, then later bottom-up once closer to project completion) and risk assessment, as well as fit to portfolio, strategy and future company development. Approved projects are then executed.

5.2.1.10 Describe how the tool supports Portfolio Evaluation and the Selection Process in your company

All forecasting and calculation of business cases was done in the system by markets and by the Corporate Portfolio Management function. The tool was used to compile the complete business case.
The Opportunity Module supported the financial evaluation of the projects by facilitating and standardising data collection and financial calculations. It was a unified platform for all ideas that had been reviewed and approved or rejected and could save the employees from spending time on ideas that had been evaluated before, or “reinventing the wheel” as one respondent put it. The tool gave long-term prediction on pipeline value.

5.2.1.11 Describe how the tool supports Project Management in your company

The tool is the core of project management and integrated into all stakeholders’ departments. It provides a connection between functions working on the same project and provides a standardised approach towards project management. Projects are planned and tracked in the system with the support of standardised project templates that include all major milestones, which ensure that no tasks are missed. It enhances the project responsibility of all stakeholders and facilitates reporting.

The tool allows for one source of information, with the option of managing access depending on roles and responsibilities.

The system allows management to focus on deviations and can proactively avoid showstoppers.

5.2.1.12 Have you seen improvement in Portfolio Management after implementing the tool?

Eight participants, or just over 60%, have seen improvements in Portfolio Management after implementing the tool and five, or just under 40%, selected the “don’t know” option. Out of those five, all apart from one were part of the Corporate Project Management function.
The following improvements were mentioned:

- The tool made forecasting and decision-making a lot easier, compared to Excel that was used before, as changes could be done in real time and market input could be challenged immediately. The interactive nature of Planisware could not have been implemented in Excel.

- The tool improved greatly the process for compiling business cases and ensured a consistent way was followed.

- The tool served as a database for all business cases, both approved and rejected.

- It provided the opportunity to compare different scenarios through creations of different versions.

- Financials of a compiled business case could be reviewed down to country level.

- The tool allowed for direct input of forecasts from country portfolio managers for bottom-up forecasting.

- It improved access to data and resulted in better use of resources as the system saved time on tasks such as reporting.

- The system reduced calculation errors.

- It created visibility, as what projects we were working on for all stakeholders became much more visible.

- Clear handover from portfolio to project management.
5.2.1.13  Have you seen improvement in Project Management after implementing the tool?

Nine participants, or 70%, have seen improvements in Project Management after implementing the tool. Four participants, or 30%, selected the “don’t know” option. Those who selected “don’t know” are equally as many from both functions.

![Bar chart showing the responses to the question: Have you seen improvement in Project Management after implementing the tool?]

The following improvements were mentioned:

- Increased transparency on all projects.
- One source for project information. Before the implementation there was no overall view of pipeline, timelines or targeted launch dates.
- The tool improved planning of projects and timelines were met.
- The process encouraged valuable discussions between key stakeholders in the process. All functions had clearly defined responsibility.
- Tracking of launches and budgeting became much easier.

5.2.1.14  What are the main benefits of using PPM tools?

- Standardisation - one source supporting one process used by all. Functional responsibilities are clear.
- Visibility on overall pipeline in one place.
- Transparency of individual project schedules and full awareness of how changes in timelines affect the final launch date.
➢ Shorter decision time: PPM provides visibility and therefore the ability to act timely when improvements are needed. Provides visibility on deviations which can be reacted to.

➢ Reporting of projects standardised and available in real time

➢ The tool reduces employee time spent on aligning project data, searching for info and calculating pipeline value.

➢ The system is only as good as the data entered into it. In order to benefit, strict rules are needed for maintenance and clear ownership of attributes.

5.2.1.15 Is your organisation able to quantify the financial benefits of the PPM implementation?

All respondents agreed that PPM tools add value to the business and the majority are of the opinion that the benefits can be quantified.

![Figure 16 Is your organisation able to quantify the financial benefits of the PPM implementation?](image)

The respondents had some ideas on how the benefits could have been quantified:

➢ It is difficult to estimate the impact of better decisions, but only one better decision could bring millions in additional sales or avoided costs.

➢ Reduced costs due to improvements in overall time to market.

➢ It is easy to quantify savings on resources such as headcounts, time needed per report, business case preparation time, etc. The organisation is able to quantify the financial benefits by quantifying the work load, such as how many work hours are saved, etc. Level of manual work goes down and less errors.

➢ More accurate data and less errors.

➢ Commercial success, first to market. ROI for projects, etc. Comparing how more quickly and accurately an overview of pipeline, status and targeted launch dates can be prepared to how much time this took before the implementation.
➢ It should be possible to do a before and after success rating (statistics). The cost of running everything in Excel vs Planisware would need to be quantified. The main inputs would be FTE (full time equivalent) savings on market and corporate level, savings provided by avoiding costly delays that would be caused by lack of a good project management system vs the cost of annual maintenance of the system.

5.2.1.16 **Is Portfolio Evaluation built into the project process at your company?**

Out of those who answered this question, 75% are off the opinion that portfolio evaluation is built into the process and 25% are off the opinion it is not.

![Graph showing the percentage of responses](image)

**Figure 17 Is Portfolio Evaluation built into the project process at your company?**

Portfolio evaluation is built into the project progress. The PoM hands the project over to the CPM. Project reviews are built into the project management process and evaluation is done at certain milestones, such as dossier submission from R&D to RA, where projects are re-evaluated by the PoM.

Overall review of the total pipeline was not done systematically, or as one of the respondents stated, “due to frequent changes in the past few years the re-evaluation of the Portfolio was more driven by integration activities, cost cutting, etc.”.

5.2.1.17 **Do PPM tools bring pharmaceutical companies sufficient ROI from a financial perspective?**

No employee selected “No”, seven selected “Yes” and six “Don´t know”.
It is pointed out that companies implementing PPM need to be big and have many projects to evaluate and manage.

When launches are dependent on time, as all patent expiry launches are, then the ROI can be significant. The system follows project timelines and it is easier to spot deviations that could result in project delay.

The tool supports the new product development process and allows the company to deploy capital and R&D resources in an efficient manner.

**5.2.1.18 Has your organisation evaluated the ROI and potential ROI of the PPM solution in use?**

Only one respondent selected “Yes” and stated that the organisation had evaluated the ROI and potential ROI of the PPM solution in use, but only in a qualitative manner rather than quantitative. It can therefore be stated that the organisation did not evaluate ROI or potential ROI of the PPM solution quantitively.
5.2.1.19 **Based on your experience, what recommendation would you give pharmaceutical companies that are considering to implement PPM solutions?**

➢ PPM is best suited for a large number of projects in a large and complex matrix organisation in order to receive the full benefits of the solution. Smaller companies can live with "smaller" solutions. Companies with large portfolios will immediately see benefits from standardisation but small portfolio companies (less than 15 products for example) can hardly benefit from a standardized approach, as the effort to create a process and implement a tool can outperform the positive effects. Large pharmaceutical companies would benefit from complete integration of PPM but smaller pharmaceutical companies might be fine with running just the project management module of Planisware.

➢ Prepare and decide upfront what is needed.

➢ The process comes first, then the tool. The process, together with ownership and responsibilities, needs to be clear to get the full advantage of the system. The tool should serve the business, not the other way around. The project management module will support pharmaceutical companies in improving time to market.

➢ Keep it simple and don’t lose sight of the goal!

5.2.1.20 **Is there any other information relating to Project and Portfolio Management for pharmaceutical companies that you would like to share?**

Only three responded to this question in the survey.
➢ It was pointed out that the process is more important than the system which should support the process, and not the other way around.

➢ Building simple, but precise enough, templates to use in the Project Management module is crucial and will be rewarded when taken into use. This comment is associated with good planning during implementation of the system.

➢ Last but not least, it was stated that there is no perfect PPM solution.

5.3 Summary
As stated in section 5.1 of this chapter, the aim of the research was to gather views on Project Portfolio Management systems in order to answer the research question put forth: Do pharmaceutical companies benefit financially from Project Portfolio Management solutions? Based on results from interviews with industry experts and the survey aimed at portfolio and project management employees in the pharmaceutical industry, it is concluded that PPM systems and PPM processes add financial benefits to pharmaceutical companies, especially larger companies managing a number of projects for markets worldwide. All respondents to the survey agreed that PPM tools add value to the business and the majority were of the opinion that the benefits could be quantified, even if this was not done by Actavis in a systematic way. It is also clear from the survey that the Planisware system used by Actavis has additional capabilities which were not utilised and thereby could potentially give a greater benefit than experienced here by the users. However, important to keep in mind that any tool can become a disadvantage if not supported sufficiently or if allowed to become too complicated.
6 Conclusion

The aim of the research was to gather views on the Project Portfolio Management system and process from pharmaceutical industry experts, who worked with and implanted the system and process, in order to answer the research question: Do pharmaceutical companies benefit financially from Project Portfolio Management solutions?

This is an in-company focused project where Actavis is used as a case study. The conclusion is that pharmaceutical companies do benefit financially from Project Portfolio Managements solutions and processes. The results from the survey carried out by the author, together with the outcome from the interviews with key informers, support this conclusion.

The benefits claimed by scholars, vendors and analyst companies are the same benefits as those stated by experienced project and portfolio management employees who were interviewed, as well as those stated in the responses to the survey questionnaire.

This research is based on a survey of one company only, but lessons learned from this research should be applicable to other pharmaceutical companies. Project Portfolio Management solutions are well suited for large, global pharmaceutical companies which are managing product development projects in several R&D sites around the world that are to be launched globally.

The main advantage of PPM for Portfolio Management, according to scholars and supported by the research results, is the integration of the portfolio management processes with the Idea-to-Launch process and the automation in the PPM tool. Effective Portfolio Management must be an integral part of the process in order to have the right projects in the pipeline.

The main benefit of PPM for Project Management according to scholars and vendor companies, is the implementation of the Idea-to-Launch process supported by the tool. PPM provides visibility on project statuses and it creates transparency between functions. Time is saved due to automation of tasks. The tool and process encourage cross functional interaction and emphasise the importance of team-work between functions rather than silos. The tool and the process enable project employees to be more responsive to changes that occur while the project is progressing through the project phases.
PPM also creates visibility for the markets that are often not involved in earlier project phases. In Actavis, the system improved the communication between country portfolio and local launch managers and their corporate counterparts.

Data management played a major role in the transformation from chaos to structure within Actavis.

Financial benefits, though not systematically quantified, can be identified from the following: simplifying the focus on the most valuable projects or Top Projects, as these projects were referred to in Actavis; improved time to market and thereby launch revenues; and cost-saving, as resources were not wasted on projects that are not of value to the organisation, to name a few examples. Cost is also saved due to automation of processes. In addition, the tool provides the markets with a long-term view of the pipeline, resulting in improved long-term planning and budgeting of project launches.

The benefits of PPM listed in the paper from Forrester in 2009 were named by participants of the survey. However, the calculation of the ROI was over-simplified and did not take the true implementation effort into account. When Actavis implemented the Project Management module from Planisware for the first time, project work started in January and the Corporate Project Management function had a system to work with in May. However, for the first few months employees were adjusting to the system, templates were being updated, reports were being generated, etc. Organisational benefits were not immediately visible. It should also be noted that the company went for a “vanilla” version of the project management module for the first implementation and no time was spent on configuration that would have slowed down the implementation.

Implementing a PPM system means changing the organisational structure to support the formalised process. When Actavis implemented PPM for the first time the management board had been partly renewed and consultants were hired to create a new process from idea-to-launch. The company headquarters were moving from Iceland to Zug, Switzerland, the company was being restructured and new departments were formed. This all made it easier to implement a new process and tool, as employees were motivated for fresh ideas and a new exciting start.

As with information systems in general, it is difficult to determine the precise value of PPM solutions. It is difficult to put a price tag on the actual financial benefits when it
comes to PPM implementation. It is also difficult to estimate internal costs as PPM implementation across an organisation needs to be supported by employees of all functions involved. It is therefore very important to consider the value of PPM both qualitatively as well as quantitatively.

As can be expected with any implementation, there is always room for improvement and the results from the case study clearly support this. The tool is an enabler and it is impossible to gain the benefits without it, but at the same time it is important to keep it simple, allow for sufficient training and keep in mind that the tool can only be as good as the process implemented. Support and maintenance of the tool are the key to success.
References


https://en.wikipedia.org/wiki/Master_data_management

https://en.wikipedia.org/wiki/Generic_drug

https://en.wikipedia.org/wiki/Marketing_authorization

ISO010006
Appendix 1: Questionnaire using Surveymonkey

Project Portfolio Management (PPM) Systems

Do Pharmaceutical Companies Benefit Financially from Project Portfolio Management Systems?

Project Portfolio Management (PPM) solutions are designed to support new product development and to get innovation to market. Pharmaceutical companies of all sizes are implementing PPM solutions to optimise project and portfolio management and to align innovation strategy.

This questionnaire is an important part of the research for my master’s thesis in business finance from the University of Iceland. The questionnaire is aimed at experienced project and portfolio management employees in the pharmaceutical industry. The main objective of this research is to find out if pharmaceutical companies are getting the financial benefits, promised by product vendors, when implementing PPM solutions.

It takes 10-20 minutes to answer the questionnaire depending on your input. The survey consists of qualitative and quantitative questions. For quantitative questions answers are predefined. The aim is to keep questions brief, specific and relevant to the research.

I would appreciate your contribution to the research. Your answers are confidential and will not be traced to individuals.

Yours sincerely,
Fjola Steingrimsdottir
1. Does your organization use Project Portfolio Management tool (such as Planisware, Planview or other)?
   - Yes
   - No
   If "Yes" which tool?

2. Please select the functions that are responsible for the usage of the tool within your organization?
   - Business Development
   - Portfolio Management
   - R&D
   - Project Management
   - Launch Management
   - IT
   Other (please specify)

3. How would you rate the PPM system in relation to supporting portfolio management at your company?
   - Very satisfied
   - Satisfied
   - Neutral
   - Dissatisfied
   - Very dissatisfied

4. How would you rate the PPM system in relation to supporting project management at your company?
   - Very satisfied
   - Satisfied
   - Neutral
   - Dissatisfied
   - Very dissatisfied
5 How would you rate the PPM solution's financial management capability?
- Very comprehensive capability
- Comprehensive capability
- Neutral
- Limited capability
- Very limited capability

Please explain your rating

6 Does the tool add value to the business?
- Yes
- No

If ‘Yes’ how does it add value?

7 Did the vendor provide consulting or input that shaped the future of portfolio management in your company?
- Yes
- No
- Don’t know

8 Why did your organization invest in PPM tools?

10. Describe how the tool supports Portfolio Evaluation and the Selection Process in your company.

11. Describe how the tool supports Project Management in your company.

12. Have you seen improvement in Portfolio Management after implementing the tool?

- Yes
- No
- Don't know

If “Yes” please explain
13 Have you seen improvement in Project Management after implementing the tool? ☐
☐ Yes
☐ No
☐ Don't know
If “Yes” please explain

14 What are the main benefits of using PPM tools? ☐

15 Is your organization able to quantify the financial benefits of the PPM implementation? ☐
☐ Yes
☐ No
If “Yes” please explain

16 Is Portfolio Evaluation built into the project process at your company? ☐
☐ Yes
☐ No
If “Yes” please explain
17. Do PPM tools bring pharmaceutical companies sufficient ROI (Return on Investment) from a financial perspective?

- Yes
- No
- Don't know

If 'Yes' or 'No' Please explain

18. Has your organization evaluated the ROI and potential ROI of the PPM solution in use?

- Yes
- No
- Don't know

If 'Yes' please explain how

19. Based on your experience what recommendation would you give pharmaceutical companies that are considering to implement PPM solutions?

20. Is there any other information relating to Project and Portfolio Management for pharmaceutical companies that you would like to share?
## Appendix 2: Unanalysed Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does your organization use Project Portfolio Management tool (such as Planisware, Planview or other)?</td>
<td>85%</td>
<td>15%</td>
<td>13</td>
</tr>
<tr>
<td>If &quot;Yes&quot; which tool?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six named Planisware and one wrote &quot;number of different solutions&quot;.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Table 1: Unanalysed Results - Question 1

<table>
<thead>
<tr>
<th>Question</th>
<th>Business Development</th>
<th>Portfolio Management</th>
<th>R&amp;D</th>
<th>Project Management</th>
<th>Launch Management</th>
<th>IT</th>
<th>Other (please specify)</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Please select the functions that are responsible for the usage of the tool within your organization?</td>
<td>46%</td>
<td>85%</td>
<td>69%</td>
<td>92%</td>
<td>85%</td>
<td>8%</td>
<td>8%</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>1</td>
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<td>2</td>
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<tr>
<td></td>
<td>6</td>
<td>11</td>
<td>9</td>
<td>12</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>51</td>
</tr>
</tbody>
</table>

### Table 2: Unanalysed Results - Questions 3 and 4

<table>
<thead>
<tr>
<th>Questions</th>
<th>Very satisfied</th>
<th>Satisfied</th>
<th>Neutral</th>
<th>Dissatisfied</th>
<th>Very dissatisfied</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. How would you rate the PPM system in relation to supporting portfolio management at your company?</td>
<td>8%</td>
<td>69%</td>
<td>23%</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. How would you rate the PPM system in relation to supporting project management at your company?</td>
<td>31%</td>
<td>62%</td>
<td>8%</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Very comprehensive capability</td>
<td>Comprehensive capability</td>
<td>Neutral</td>
<td>Limited capability</td>
<td>Very limited capability</td>
<td>Number of respondents</td>
</tr>
<tr>
<td>----------</td>
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<td>------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>5 How would you rate the PPM solution’s financial management capability?</td>
<td>8%</td>
<td>31%</td>
<td>62%</td>
<td>13</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Please explain your rating:</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>The system was not used to manage financials as such, so cannot really evaluate the capabilities.</td>
<td></td>
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<tr>
<td>Limited experience.</td>
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<td></td>
</tr>
<tr>
<td>No experience.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Not been using it as such.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>We never utilized the financial capability in our PPM system.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The features allows basic forecasting with most important factors in generic business which is fine with current scope.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I am not involved in the process so difficult for me to comment on it.</td>
<td></td>
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</tr>
<tr>
<td>Forecasting tool we used for Portfolio Management covered all the necessary basics - NPV, IRR, Discounted Payback Period, Working Capital Calculation etc.</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Don’t Know</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Does the tool add value to the business?</td>
<td>100%</td>
<td>13</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>If “Yes” how does it add value?</td>
<td></td>
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</tr>
<tr>
<td>By having projects managed within one tool from several different functions (R&amp;D, BD, IL, Project Management etc.) there is the advantage of having one version of the truth. This is of course only reliable if the responsibilities within each function for maintaining the project data are clear and strictly adhered to.</td>
<td></td>
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</tr>
<tr>
<td>Decision making process is much better, better planning and prioritisation, right decision on only 5 projects more could brings millions in savings and higher profit.</td>
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<tr>
<td>Transparency – overview to all stakeholders.</td>
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<tr>
<td>Standardization and access to data and facilitation of the process.</td>
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<tr>
<td>Providing transparency of timelines and targets.</td>
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<tr>
<td>Good tool to have overview over the road from start to end in launching a product.</td>
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<tr>
<td>Full visibility on our projects for all stakeholders. Decision making thus much faster and less &quot;noise” due to uncertainty in information flow.</td>
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<tr>
<td>Everybody have the same project list -no time spent on confirming all data. Allows direct and total coverage of data for reporting that creates clarity in future pipeline -less risk of wrong prioritization or lack of decisions due to missing data.</td>
<td></td>
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<tr>
<td>You need the information in one place but you usually spend a lot of time and money to get there.</td>
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<tr>
<td>It helps streamline decision making process and, most importantly - handover to project management.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Don’t Know</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Did the vendor provide consulting or input that shaped the future of portfolio management in your company?</td>
<td>38%</td>
<td>31%</td>
<td>31%</td>
<td>13</td>
</tr>
<tr>
<td>Question</td>
<td>Number of respondents</td>
<td></td>
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<td>--------------------------------------------------------------------------</td>
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</tr>
<tr>
<td><strong>8 Why did your organization invest in PPM tools?</strong></td>
<td>12</td>
<td></td>
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</tr>
<tr>
<td>There was a clear need for managing projects in a system accessible to all stakeholders, both to create visibility on status and progress of projects as well as having one source of information.</td>
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<tr>
<td>As many project exist, the organization realized we need to systematize and work along the process.</td>
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<tr>
<td>Too many projects to handle it on manual / excel way, need for real time data, many users, many functions involved - significant return on investment.</td>
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<tr>
<td>NA</td>
<td></td>
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</tr>
<tr>
<td>Standardization and access to data and facilitation of the process.</td>
<td></td>
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</tr>
<tr>
<td>Create visibility, one truth.</td>
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<tr>
<td>To gain clarity on pipeline and timelines.</td>
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<tr>
<td>Not involved.</td>
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<tr>
<td>To get full control of the pipeline and make sure we would hit our target dates.</td>
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<tr>
<td>To create clarity and reduce time spent on aligning project data, searching for info and calculating pipeline value.</td>
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<tr>
<td>Upgrade vs Excel.</td>
<td></td>
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<tr>
<td>To organize and track idea to market process.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9 Describe the Portfolio Evaluation and Selection Process in your company.</strong></td>
<td>9</td>
</tr>
<tr>
<td>Evaluation of new opportunities was done by the Portfolio Management team, in cooperation with relevant functions such as R&amp;D for in-house developments, IP for all projects, IL team for external offers, S&amp;M for commercial interest etc. All projects where then brought for an approval meeting with all stakeholders and decision makers, including upper management. First step of the project evaluation was to trigger high level IP screening, financial evaluation (usually top down for early evaluation, then later bottom up once closer to project completion), risk assessment as well as fit to portfolio and strategy.</td>
<td></td>
</tr>
<tr>
<td>All product candidates are screened for strategic fit, financial viability, and how they fit the current company status vs. future company development.</td>
<td></td>
</tr>
<tr>
<td>Based on financial parameters - NPV.</td>
<td></td>
</tr>
<tr>
<td>Initial idea pool is screened by portfolio team. Then, input is collected from stakeholders, consolidated and reviewed by portfolio manager, leading to a business case with recommendations. Final decision taken by senior management.</td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Not familiar with Portfolio part.</td>
<td></td>
</tr>
<tr>
<td>1. Horizon Scanning and Idea pool generation 2. Pipeline project evaluation 3. Project approval with top-down financials 4. Project execution including final approval per market with bottom-up financials.</td>
<td></td>
</tr>
<tr>
<td>Several sources of ideas - therapeutic area analysis, IP analysis, IL sources, market wishes and ideas, other. Ideas then selected based on strategy, market size, growth potential and fit to future portfolio development. If the BC shows positive NPV, good IRR (in comparison to discount rate, to allow for errors, unpredicted events), terminal value (to indicate longer term potential), discounted payback period (threshold set based on the type of opportunity - ideally, we would wish to have positive NPV by year 3 after launch date).</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Number of respondents</td>
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<tr>
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</tr>
<tr>
<td><strong>10. Describe how the tool supports Portfolio Evaluation and the Selection Process in your company.</strong></td>
<td>9</td>
</tr>
<tr>
<td>In cooperation with Planisware a new Portfolio Module was constructed in the system in order to support the Portfolio Evaluation. This module supported the financial evaluation of the projects and was used to compile the complete business case.</td>
<td></td>
</tr>
<tr>
<td>Provides unified platform to evaluate products, using standardized criteria.</td>
<td></td>
</tr>
<tr>
<td>Broad candidate evaluation is made out of system. Formal BC is made and updated in the system. Portfolio tracking in the system.</td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Facilitates and standardized data collection and financial calculations.</td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Not familiar with Portfolio part.</td>
<td></td>
</tr>
<tr>
<td>Creates clarity on what ideas have been reviewed and approved/rejected - no double work or &quot;reinventing the wheel. Gives long-term prediction on pipeline value.</td>
<td></td>
</tr>
<tr>
<td>All the forecasting (by markets and by corporate) done and calculated in PW.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11. Describe how the tool supports Project Management in your company.</strong></td>
<td>9</td>
</tr>
<tr>
<td>By giving one version of the truth. Allowing for one source for information, with the option to manage access depending on roles and responsibilities.</td>
<td></td>
</tr>
<tr>
<td>Provides a connection to Portfolio, R&amp;D and Finance tool that also allows for precise project status identification. Provides standardized approach when measuring launch success.</td>
<td></td>
</tr>
<tr>
<td>Portfolio / projects are planned and tracked in the system. Includes major milestones - critical path.</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Provides overview, milestones and targeted timing tasks for projects. Enhances project responsibility of all users. Facilitates reporting.</td>
<td></td>
</tr>
<tr>
<td>It facilitates proper project managing with respect to timelines and the steps involved, so nothing gets missed out and it is clear when items are due.</td>
<td></td>
</tr>
<tr>
<td>Visibility at all time for all concerned, and a tool that you can link to different processes within PW.</td>
<td></td>
</tr>
<tr>
<td>Is the core of project management and integrated into all stakeholder departments and interfaced with other systems (like ERP). Allows manager to focus on deviations and can act proactively to avoid show-stoppers.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12. Have you seen improvement in Portfolio Management after implementing the tool?</strong></td>
<td>62%</td>
<td>38%</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>No</td>
<td>Don't Know</td>
<td>Number of respondents</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------</td>
<td>-----</td>
<td>------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>13 Have you seen improvement in Project Management after implementing the tool?</td>
<td>69%</td>
<td>31%</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td><strong>If &quot;Yes&quot; please explain:</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>As mentioned before, having one source for project information was a huge improvement.</td>
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<tr>
<td>Timely tracking, and timely improvement action where necessary.</td>
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</tr>
<tr>
<td>Better planning, less delays, easier access to information, less resources needed.</td>
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</tr>
<tr>
<td>Before the implementation there was no overall view of pipeline, timelines nor targeted launch dates. The process was not viewed in a wholistic way.</td>
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</tr>
<tr>
<td>Better visibility and better project management.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>We had transparency on all projects - we had better discussions with key stakeholders in the process. We hit our timelines. All functions had clearly defined responsibility.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Tracking launches and budgeting become much easier. Eliminated human error factor in many aspects.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 What are the main benefits of using PPM tools?</td>
<td>11</td>
</tr>
<tr>
<td>Main benefit is to have once source used by all. Should be kept in mind that the system is only as good as the data entered into the system, in order to benefit there need to be strict rules for maintenance and clear ownership of attributes.</td>
<td></td>
</tr>
<tr>
<td>Visibility and ability to act timely and precisely where and when the improvement should be reached.</td>
<td></td>
</tr>
<tr>
<td>Better decision making.</td>
<td></td>
</tr>
<tr>
<td>Overview - standardization - better use of processes.</td>
<td></td>
</tr>
<tr>
<td>Standardization and access to data and facilitation of the process.</td>
<td></td>
</tr>
<tr>
<td>Clarity of pipeline; Full awareness of how change in timelines affect the final launch date; condensed and clear information about the project for reporting.</td>
<td></td>
</tr>
<tr>
<td>Overview of all projects in one place and when properly setup, allows follow up to meet target timelines.</td>
<td></td>
</tr>
<tr>
<td>Transparency, shorter decision time, functional responsibility.</td>
<td></td>
</tr>
<tr>
<td>Allows manager to focus on deviations and can act proactively to avoid show-stoppers. create clarity and reduce time spent on aligning project data, searching for info and calculating pipeline value.</td>
<td></td>
</tr>
<tr>
<td>Traceability, history</td>
<td></td>
</tr>
<tr>
<td>Interactivity, possibility to connect all phases of idea to market process, saving time for markets and corporate.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Is your organization able to quantify the financial benefits of the PPM implementation?</td>
<td>67%</td>
<td>33%</td>
<td>12</td>
</tr>
<tr>
<td><strong>If &quot;Yes&quot; please explain:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launches on time, no/less additional cost reaching improved targets.</td>
<td></td>
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<tr>
<td>It is difficult to estimate impact of better decision (but only one better decision could bring millions in additional sales or avoided costs). Easy to quantify savings on resources (headcounts, time need per report, business case preparation time etc.)</td>
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<tr>
<td>The organization is able to quantify the financial benefits by quantifying the work load such as how many work hour are saved etc. Level of manual work goes down and less errors.</td>
<td></td>
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<tr>
<td>Commercial success, first to market. ROI for projects etc.</td>
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<tr>
<td>Comparing how more quickly and accurately an overview of pipeline, status and targeted launch dates can be prepared, to how much time this took before the implementation.</td>
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<tr>
<td>Should be able to do that with before and after success rating (statistics).</td>
<td></td>
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<tr>
<td>It should be, but I do not have the numbers that compare the costs of running everything in excel vs PW. Main inputs would be FTE savings on market and corporate level, savings provided by avoiding costly delays that would be caused by lack of good project management system vs the cost of annual maintenance of the system.</td>
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</tbody>
</table>
### Question 16
Is Portfolio Evaluation built into the project process at your company?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>75%</td>
<td>25%</td>
</tr>
</tbody>
</table>

If "Yes" please explain:
- Due to frequent changes in the past few years the re-evaluation of the Portfolio was more driven by integration activities, cost cutting etc.
- Evaluation is done at certain time periods / gates / project phases.
- It is in the process but not in the system.
- Portfolio evaluation is built in at stage gate milestones, such as dossier submission to regulatory authorities.
- Do not know it in details.
- Built into a process where portfolio management handed over every project to Project Management. Also the Portfolio evaluation had gates on the way where projects were re-evaluated.
- All projects undergo regular reviews and can be accelerated or terminated depending on the situation.

### Question 17
Do PPM tools bring pharmaceutical companies sufficient ROI (Return on Investment) from a financial perspective?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>17</td>
<td>54%</td>
<td>46%</td>
</tr>
</tbody>
</table>

If "Yes" or "No" please explain:
- Yes, if company is big enough to have many projects.
- Better performance in PM when launching new products.
- Specifically it is in bigger companies where launches are dependant on time - WE specifically. This keeps certain level of attention to all projects and easier understanding on deviations from timelines.
- Well, without the tool the company would not be able to deploy capital or R&D resources in an efficient manner.
- I would say yes, but I cannot quantify this.

### Question 18
Has your organization evaluated the ROI and potential ROI of the PPM solution in use?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>8%</td>
<td>31%</td>
<td>62%</td>
</tr>
</tbody>
</table>

If "Yes" please explain how:
- It is difficult to quantitate it but the main benefits is in standardization and time saving.
- The organization has evaluated the ROI and potential ROI of the PPM solution in use but only in qualitative manner rather than quantitative.
<table>
<thead>
<tr>
<th>Question</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>19</strong> Based on your experience what recommendation would you give pharmaceutical companies that are considering to implement PPM solutions?</td>
<td>11</td>
</tr>
<tr>
<td>Clear advantage of having a PPM tool, but important to have clear processes and ownership of attributes and maintenance to get the full advantage of the system.</td>
<td></td>
</tr>
<tr>
<td>Large portfolio companies will immediate see benefit from standardizing the approach to measuring product launches and improving where necessary. Small portfolio companies (less than 15 products for example) can hardly benefit from standardized approach, as the effort to create a process and implement a tool can out-benefit its otherwise positive effect.</td>
<td></td>
</tr>
<tr>
<td>PPM is solution is needed but it should be selected based on company needs / portfolio.</td>
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<tr>
<td>Keep it simple and keep an eye on the goal.</td>
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<tr>
<td>The tool adds value by balancing the workload needed to serve the business. Cannot be the other way around – the business should not serve the tool.</td>
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</tr>
<tr>
<td>I strongly advise to do so.</td>
<td></td>
</tr>
<tr>
<td>Go for it, if there are projects that need to be split down to tasks and especially time related.</td>
<td></td>
</tr>
<tr>
<td>You need a certain mass and complexity to get full benefits. Smaller companies can live with &quot;smaller&quot; solutions - but this will always benefit any company to get products to the market earlier.</td>
<td></td>
</tr>
<tr>
<td>Depends on the number of projects in parallel, the complexity of the organization/pipeline and the number of stakeholders. PPM is best suited for large number of projects in a large and complex matrix organization. And also - make sure that you design and prioritize having basic processes in place first!</td>
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<tr>
<td>Think carefully and decide upfront what you want.</td>
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<tr>
<td>Large pharma would benefit from complete integration of portfolio and project management in an interactive way to guide decision making and adjustments along the way. Smaller companies might be fine with running just project management in PW.</td>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>20</strong> Is there any other information relating to Project and Portfolio Management for pharmaceutical companies that you would like to share?</td>
<td>3</td>
</tr>
<tr>
<td>No perfect PPM solution.</td>
<td></td>
</tr>
<tr>
<td>The process is more important than the system - system supports the process.</td>
<td></td>
</tr>
<tr>
<td>Building the correct template, simple but yet precise enough, is crucial and will be rewarded when taken into use.</td>
<td></td>
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</table>