Management of IT applications at Siemens Wind Power

Internship report

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Internship tutor: Daniel Krob
Master student: George Popescu

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Abstract

The internship was carried out at Siemens Wind Power A/S, the Renewable Energy Division of Siemens AG, in the IT department, located at Borupvej 16, Brande, Denmark. My internship goals started with the idea of making use of the knowledge in complex informatics systems I have been thought at my university, École Polytechnique and to develop new IT capabilities by means of practice and training. They further advanced into using great enterprise tools, offering support, reporting and business improvement while developing networking and relationships, understanding new technologies, having an organizational overview and taking part in the Siemens flexible business model. Individuals worked mainly in teams on various projects according to their technical background and soft skills while initiative and problem solving skills were very much appreciated.

Summary

My work resembled management of IT applications, licensing, reporting and project management. My first main task was to establish the new e-learning software tool (Oracle User Productivity Kit) within the organization by replacing non-standard ones (Adobe Captivate, OnDemand, Camtasia, etc.): planning, resource allocation, distribution list and message notification, library migration, training preparation, server configuration, and then used this tool for recording Information Security trainings, TrueCrypt management presentation, user documentation files, SAP e-learnings and templates. Another one consisted in Microsoft SharePoint tasks: analysis, test and implementation of Dundas Charts as web-parts into the online collaboration platform, generate monthly reports and send them to the respective cost-centers, administrate the IT departments website, built macros in Excel for automatic filtering etc. I have also evaluated all organization licenses by participating in the Software Asset Management project through which IT ensured that all software applications are compliant with Siemens guidelines. For this, I have used the Software Installation Manager for a list of allowed applications, License Watch for real-time software reports on each computer, Software Portfolio Management as universal tool for license approval and IT Navigator for cost-center and division license tracking. Lastly, I have defined, extracted and interpreted enterprise key performance indicators from the main incident reporting tool – Remedy.
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Introduction

The present report presents an in-depth description of my internship at Siemens Wind Power A/S in Denmark. The focus is put on the outcome of the conjunction between the academic background developed while a student in the second year of Masters at École Polytechnique and the work experience gained during the 6 months of internship.

Both personal and professional motivation will introduce the choice and development of my internship. Briefly, the main and decisive points for choosing Siemens were: internship relevance for my study program, future main tasks and responsibilities, learning process and gain of knowledge, practical experience in terms of quality, technology understanding and, nevertheless, understanding the global business model of Siemens as one of the largest companies in the world acting on a rapidly growing market. Furthermore, I was looking forward to work in a multi-national environment at the company’s head-quarters together with other talented interns from more than 60 countries.

My objective analysis will emphasize on the overall learning process and internship phases by showing how this helped me at its full-potential with regards to my future research. I will present my most relevant achievements and how team-work was decisive for such accomplishments as well as open possibilities which I found by working with the newest technology solutions, how I managed them and how projects continued during the 6 months term. In consequence, the impact of my work will also relate to the appreciation of my manager and peers, project planning, task ownership and continuation and even having been appointed as mentor for other students.

By looking forward at the next chapters the reader should expect to find both an objective (as per the results obtained, business reports, study relevance etc.) and subjective (the personal accomplishments and experiences due to own overall appreciation of the internship including team-work and task ownership) approaches.

During all phases of the internship it was thus extremely interesting to see how concepts from different domains (globalized network, requirements analysis, operational, functional and organic architecture, user preference, collaboration platform, software management) connect one-another within the largest European engineering conglomerate by communicating with employees and teams from all-over the world. Finally, the current paper sets up the next steps in my career towards the research sector – I have learnt especially how to make technology more user-friendly and which are the means for an overview from a larger scale for it.
I. Structure

The presentation plan aligns with a chronological description of processes learnt and knowledge gained during the internship. In parallel, it shows the progress on various projects together with the more and more projects which I have been allocated to. Alternatively, there are described the 3 points of view: the personal / intern one, the company / management or supervisor one and the IT point of view. Moving from the past to the starting point of my internship, the report outlines the contribution of the study program in adapting to the Siemens technology tools and then advances further on to each monthly step of my internship: management of small tasks, development of these tasks into larger projects, working in teams, task ownership and finalization of engagements.

II. My career interests

Since high-school I have become fascinated by Mathematics and Informatics. Later on, at the Bachelor level I have studied in more details the main IT and Computer Architecture tools and proceeded towards writing research papers and participating in students’ communication sessions presentation and competitions. By being given the chance of combining my Masters academic
preparation in Design and Management of Complex Computerized Systems with half-year internship I could develop my research interest and curiosity for technology, in general. At the moment, my career plan advances towards a research career in management of technology.

III. Theoretical background of information systems

My Master studies at École Polytechnique enabled me to understand computerized systems and perform best in working with the newest technologies. While working with enterprise collaboration tools on IT administration and Application management projects I made great use of my knowledge connected to the Master’s disciplines as: Computer architecture, Distributed systems, Internet technologies, Security of information systems, Software architecture, Data modeling, Project management, Interoperability etc. Most of the key knowledge I experimented on large enterprise solutions for Siemens provided by Microsoft, IBM, Oracle, SAP, Adobe, etc. by studying information system architecture (operational context, way of use and configuration).

![Diagram of fields of activity](Image)

Figure 2: The list of the main fields of activity which I performed in

![Diagram of enterprise IT solutions](Image)

Figure 3: Main enterprise IT solution which I used
IV. Siemens

1. Why Siemens?

a. Personal motivation

I have chosen Siemens because of many personal and professional development reasons. First of all, I knew that Siemens will provide me with the right IT learning platform so that I will fully benefit from making extensive use of my computer science skills and knowledge from my university, École Polytechnique. Secondly, by acting in a rapidly growing sector (wind energy) I would face many challenges associated with finding the right IT solutions in the shortest time with the best cost. This kind of environment implies having been assignment many tasks which few other individuals inside the enterprise can solve, I thought.

Moreover my recommendations from my friends working at other Siemens locations (in Romania, France and even Denmark) presented to me a solid company and network, actually the largest engineering conglomerate in Europe. Nevertheless the contract details (salary, working hours, holidays etc.) showed a very efficient work environment in which my-self, as a future intern, will have given my best while having the freedom of choosing my tasks I can solve at a very high level of quality. To sum up, Siemens represented for me, at the moment of my choice, the best option in regards to my expectations and academic background.
b. Professional perspectives

The professional perspectives which arose at the moment I have chosen Siemens were not fixed to one field of activity or career path. Under-contrary, I knew that I would learn much from many fields: IT, Engineering, Administration and even Marketing so that, at the end of my internship, I would be able to choose from a wide variety of “jobs”. Furthermore, as I was not sure if my career would turn to an enterprise-based job or a research assistantship position, working at Siemens would provide me with both means of seeing my practice: research though the main tasks in which I worked alone while researching on one specific solution and “common” employee as seeing how my 6-months contribution will benefit my professional path on the basis of my professional experiences and my Masters degree.

![Image: The main opportunities of the Energy sector - transition is driven by broad and diverse developments]

By having already some experience in IT networking at Orange and working as EMEA IT Technology Business Presales Consultant at Oracle before coming to Siemens I was looking forward to develop my consulting, IT and communication skills in a very large enterprise. Then again I was hoping to collaborate with experts from different fields understanding their needs and evaluating development in different strategic sectors. Once more Siemens proved to be the best option for working at the head-quarters of the Wind Power division.

c. Siemens IT infrastructure

Siemens technical infrastructure is impressive – there are mainly large enterprise tools provided by SAP, Microsoft, Oracle etc. while some domain specific applications are developed by the
main company itself. Some of these solutions include reporting, human resource management, instant messaging, security tools, encryption, messaging, antivirus, networking, office applications, etc. Siemens focus on automating processes and work-flow yielded in working together with its partners and creating more and more standardized IT tools (for example cloud-computing, e-learning, trainings, collaboration, web-content editing, etc.). Reducing the IT complexity is a huge challenge at Siemens and the effects in cost-savings are very much obvious – this is one of the reasons why managers opted for reducing the number of applications which more or less offer the same functionality.

d. Headquarters

Siemens Wind Power is an international company with more than 6800 employees worldwide and locations in Denmark (most activities), Germany, United Kingdom and United States. The company’s headquarters are located in Brande, Denmark and a total of 2,700 employees are working here. Here are great working facilities and cantina and production place. The company grew a lot in the past few years and the atmosphere is very good and competitive. Since acting in a very fast-paced international environment I received many challenges personally. At the headquarters, Siemens Wind Power has excellent training and development courses.

Figure 6: Siemens Wind Power off-shore locations and projects
e. **Green enterprise**

Both cloud computing and sustainable technologies are an integral and important part of Siemens IT Solutions and Services' portfolio of IT outsourcing services. The company has solutions for the environment with regards to both classic technologies and IT.

Siemens mission is “engineering the wind”: make efficient wind turbines that interact with nature to produce clean, renewable wind power. The “Best@Wind” vision is shared through employees’ mindset by being preferred because of their quality, reliability, innovation and responsibility – this is their way to achieve sustainable success and long term profit.

![Siemens Energy presented as an integrated platform solution](image)

**Figure 7: Siemens Energy presented as an integrated platform solution**

By being a world-leading provider of solutions Siemens is at the top of sustainable technologies, from power generation through to IT. The term ‘Green IT’ adopted by the industry refers to increasing energy efficiency in IT infrastructure management, e.g. ‘Green Data Centers’. Siemens, as a green enterprise include in its offer business solutions that help customers move towards reaching greater levels of maturity in their management of sustainability practices. One example is the innovative Environmental Load Accumulation Modeling (ELAM) techniques.

Quoted by the media, Siemens has appeared a stronger player in cloud computing together with its best practice approach: adopt new technologies by making use of the benefits of comprehensive traditional architectures and alternative "as-a-service" deployment models – always considering security, retention, accessibility, recovery and privacy.
2. Why Denmark?

a. Cultural change

Denmark is an egalitarian society in which neutral language is preferred. I rapidly got used with horizontal structure of both the organization and society in which any member can speak freely and everyone will listen. Moreover, I was very nicely impressed by the fact that most Danish people are speaking English (even in super-markets, banks, town-center, doctor etc.). Since most Danes are modest about their own accomplishments and are more concerned about the group than their own individual needs working in teams is the best preferred method and people rapidly achieve compromise. The meeting etiquette I have noted refers to casual greetings, with a firm handshake, direct eye contact, and a smile. When arriving or departing everyone was expecting to say something. Since position is less important, Danes tend to introduce themselves with their first names (without academic or professional titles) – personally, I was very amazed by such behavior especially because all Danes are very hard working and talented.

It was interesting for me to note that at a birthday celebration for example all gifts were opened when received and that the person having one year more would honor the others with a short speech and some Danish cake / cookies.

Danes always expect employees to arrive on time because they themselves are extremely punctual in both business and social situations. During the first days of my internship I was presented to all of my other colleagues (even from other departments close locations) and introduced to their work. At the first Applications team meeting I was asked to introduce myself from a person-wise point of view and the welcoming was very nice.

b. Business etiquette and protocol

Appointments were necessary for all meetings. In the same time it was needed to confirm appointments in writing. The vacation season implies that meetings scheduled from mid June through mid August were easily cancelled since many Danes were on vacation.

Arrival at meetings on time was very important. Danes transmitted a strong punctuality feeling to everyone else invited. It was a general custom to send agendas before the meetings and work from it without deviation. Decisions were always made after consulting with everyone involved. Presentations have been well-organized and factual. Facts, figures and charts were used to back up statements and conclusions. Everyone expected eye contact while speaking. There was a
minimal amount of small talk most of the times because Danes prefer to get down to business quickly while communication was direct.

c. Living in Brande

Brande is a city located in the center of the Jutland peninsula, region Midtjylland, in west Denmark. The fact that the Siemens Wind Power headquarters are located here is the most important characteristic of the city. Having a warm atmosphere and nice people always offering their help for a new-comer helped me accommodate faster: one of the great advantages was to always have a Danish friend to translate papers for signing up for doctor, town-hall, social insurance, accommodation, contracts, etc. The town is half-represented by Siemens employees. The town’s architecture is very nice, in traditional Danish style. There are super-markets in which one can buy about anything at very good quality. Here are all major banks and international companies for clothing and food. The city is extremely clean and very well preserved while being surrounded by beautiful landscapes recommended by the Queen of Denmark. Around the city there are many wind-turbines installed thus the city being fully powered by green-energy.

d. Technology point of view

Denmark is one of the world’s most technology-oriented countries. Actually, in a few years, it is planned that all transportation system in the country is to become based on “green-energy”: both cars and trains to be powered by wind-turbines installed on and off-shore.
Siemens, as most companies in Denmark, has a wide and complex network infrastructure (computers, routers, wind-turbines, ticketing systems, efficient transportation, and communication). Production facilities are installed while greatest orders are delivered all-over the world from Brande. On the other hand everything can be easily found and accessed online.

V. My internship at Siemens Wind Power

1. My expectations

Before coming to Siemens I was expecting to discover and work with the highest challenges and standards in IT on the domains I have studied at my university. In other words, I was expecting my work place to be as 100% relevant to my studies, my past experience and my future. During my introduction to Siemens I was also expecting to learn more about the company and receive an
overview of the engineering field within Siemens and also to be introduced to the main daily tools. My thoughts related to having a steady development during each month of my internship and always find solutions to most challenging projects.

Dividing my expectation into 3 areas I imagined my learning process to connect with my practical experience, coaching I would receive, training and mentoring, my performance to relate to the main IT tools, support for applications, reporting to my manager and help business improve and my personal and professional development to be built on networking with colleagues and peers, have more contacts inside and outside the organization, understand new technologies, have a better organizational overview and apply to Siemens business model. At the center of these 3 activities would be my most visible results, achievements and accomplishments for the entire internship.

![Diagram](image)

**Figure 8:** My activity categories

### 2. Internship as a learning process

Most of the assignments that I handled were long-term projects that had already started and they were at the most advanced stages of there completion. Some other small tasks have been completed in the shortest time and had an urgency character.

In order to better identify my needs and expectations and corroborate this with the company’s I have developed a SWOT diagram. It reveals my impressions about the internship character.

The main strengths which I have identified are: the fact that I could choose the tasks which best suited my formatting and preferences, I was allocated into teams and projects according to my academic knowledge and then as a continuation of my skills, I had excellent communication and
knowledge sharing with my colleagues together with prompt replies and help from my manager, the work atmosphere was nice all the time and I got professional training and preparation. By opposition, the internal factors revealed as weaknesses the fact that sometimes the tasks gained too much complexity, deadlines were missed easily and, as a reason for this, few persons were named responsible for the same task. Knowledge was distributed horizontally which meant that finding the right person to reply to specific demands might be a long process.

The external positive factors, i.e. opportunities, outline a fast professional growth, technology understanding and plenty of practice, acting in a dynamic environment, continuation of the projects I most liked and the possibility of choosing another department, business area or even country. Principal threats have been: a too long process for resolution some tasks, activity stand-by during holidays, IT-maintenance and system shutdown during some periods of time, approval is a very slow process and IT configuration can easily get too complex.

To sum up, the SWOT analysis helped me concentrate better on the strengths and opportunities at Siemens during my internship rather and avoid the weaknesses and threats. In the same way, I combined my impression about my internship and the overall working environment at Siemens so that I would increase my performance during the 6 months seen as a learning formation.

Figure 9: Personal SWOT Analysis

To sum up, the SWOT analysis helped me concentrate better on the strengths and opportunities at Siemens during my internship rather and avoid the weaknesses and threats. In the same way, I combined my impression about my internship and the overall working environment at Siemens so that I would increase my performance during the 6 months seen as a learning formation.
3. Internship phases

Working as a team with the rest of IT Applications team (E IT R WP APP, i.e. Energy, Information Technology, Renewable, Wind Power, Applications) was something that I truly treasured and it was through them that I found it more enjoyable and easy to deal with my assignments on my projects. This gave me the morale to work even harder in order to meet deadlines. Being given a chance to learn and use state of the world enterprise software tools such SharePoint, User Productivity Kit, CAT utilities, Software Portfolio Management, License Watch was extremely exciting.

I have divided my internship work into three phases corresponding to short, medium and long term (that is the first 2 months, the next 2 and the final 2 months): small tasks which should be interpreted as reporting to my activities, more complex tasks together with their controlling and finally task ownership and management of my own responsibilities. Since working at Siemens was based on intern and employee self-responsibility it was natural for me to interact at the 3 levels mentioned in the diagram below: employee, management and IT.

![Diagram](image)

Figure 10: My internship progress seen from the employee, management and IT levels

According to the description above I followed a process of introduction to Siemens especially due to my department colleagues and the “New @ Siemens” online training. I had many normal and live meetings and started collaborating in online teams shortly after my induction.

When the controlling of more complex tasks was necessary I became familiar with the use of IT Navigator (a tool for seeing which applications are allowed in all Siemens), WorkSpace (the
main portal for document storage, management and sharing), Software Portfolio Management (the main controlling platform for all Siemens Wind Power applications, their responsible, status of the application, etc.) and LicenseWatch (the online platform for registering licenses, users, workstations, manufacturers, purchase orders, etc.). This yielded in short term to a very large project within SWP (Siemens Wind Power) namely “Software Asset Management at Siemens” (this and all other projects will be detailed under the “Work experiences” section below).

Self-tasks together with their ownership and management related to monthly reports from the Incident Request tool named Remedy, defining and analyzing Key Performance Indicators (KPIs) for the Applications department and store this with a nicer output from Dundas charts into SharePoint and define e-learning recordings ranging from SAP trainings to basic application setup in Oracle User Productivity Kit and Knowledge Pathways. After the UPK training a local demand for e-learning recordings grew very fast and many new users were requested to start working with UPK version 3.6 immediately. Since I already had the strong knowledge about using this tool I have developed training skills by teaching a group of 10 users how to first install and configure and then use UPK according to their specific needs, especially for SAP transactions and processes. This allowed me to understand basic user needs and to be able to explain to the class in an easy-to-understand matter the functionalities and options of the tool.

4. Completion of assignments

Completion of assignments usually presumed having a predefined target and levels of quality so that the final user would be satisfied with the solution. My activities amplified in both complexity and duration from the first level: incident reporting and support, check of application consistency, cost-center reporting, visual reporting, organizational KPIs, web applications overview and software asset management to the second and third levels of building up documentation, define the planning and process for entire projects, create test cases and do the implementation of the final solution. The final purpose was to be able to define a method of automation of processes so that data would be retrieved easily and managers could interpret it with ease.

One task would have its status changed to complete when the final user would approve the solution and / or the testing was successful and documentation ready.

In the case of large size projects we discussed in teams what the next steps were and passed on to new or derived tasks. A planning process was always mandatory and guidelines for approval and finding the right resource were available.
5. Work experiences

Daily work presumed working with applications and systems of the entire Siemens network from which the main ones are presented in the below diagram.

![Siemens network diagram]

Figure 11: Siemens network

The only allowed operating system is Windows XP running on different types of computers (e.g. Fujitsu Siemens Lifebook ESeries). The operating system is protected by a firewall from external access and a CAT package (which will be described in more details below) allows all computers from the Siemens physical network to be updated with the latest security patches and add-ons. From SIM (Software Installation Manager) users can access any Siemens allowed software (with license) and install on their machines. Lastly the diagram shows that all SWP organization is connected to the global SharePoint infrastructure. Adjacent to it there are IT Navigator, Software Portfolio Management and License Watch.

The main software applications providers which I used are listed below:

- **Siemens**

I have used, tested and documented many Siemens developed applications and platforms. The projects I was involved in demanded for clarification of how these tools can be most efficiently used from a system architecture point of view.
My work resembled application management – general configuration. Having the right application architecture was essential for Siemens to manage the incoming requests from customers. Moreover, working at very high standards with high performance applications allowed me to develop a long-term process evolution. I also developed reports for the Engineering group and administrated SharePoint sites and site collections for the SharePoint support group. Besides respecting the service level agreements I worked on application consolidation, process acceleration and innovative software development tasks (e.g. SPM).

By using Software Installation Manager I had access to the entire list of compatible applications within Siemens. This represented the main repository or download space which I have used in designing my guidelines for the final users which opted for some specific applications.

While working with License Watch, which was the main tool for license tracking and cost-center reporting, I solved my complex part for the software asset management project though which the main purpose, that of having on Siemens computers only Siemens compliant applications, was achieved. For this project I have set up access to the system and supported the categorization of application. I also made a document as guideline for how to un-install applications for un-experienced users. Together with my colleagues I have built and designed an automatic tool for e-mail generation with the use of Excel, Access and Outlook for all the organization. The next step was to design a reporting tool in order to see what were the results of the un-installation and do a follow-up. My contribution anchored to writing the e-mail template to be sent, group different versions of the same application together (e.g. Adobe Acrobat 8.1.4 into Adobe Acrobat 8), describe the requirements to the programming team, located and selected the old physical licenses available, update the system with these new recordings, investigate the licenses associated with each cost-center, sort licenses, test the response time of License Watch so that we could see how fast is the reply of the system after one installation and un-installation (heart-beat) and create a comparison list working as replacement between various applications (e.g. WinRAR and WinZip).

IT Navigator is the main tool for seeing which applications are eligible in Siemens. As part of my SAM project I updated IT Navigator and made sure both used and current applications were visible in the system (ITN was available for all employees). On the other hand Software Portfolio Management is the local solution developed by Siemens to maintain the overview upon allowed applications in Siemens Wind Power. Nevertheless CAT packages (which are Windows and security updates to keep the operating system safe) were updated regularly by IT HelpDesk. My role was to make the tests under an administrator configuration of these CAT packages. I did the
planning and the follow-up for the entire project during 4 months and helped with the deployment of some applications.

The IT Applications team needed a redesign for the home website. I participated by submitting my ideas about how new technology can help and be combined into SharePoint.

From the Security Officer for all Siemens Renewable division I have received the task of preparing and delivering the all employees information security training. In this way I prepared the content of the training, implemented it into Oracle User Productivity Kit and SAM* (a similar tool for adding slides and questions together with printed a certificate for the participants according to one or more criteria of successful completion) – the old tool was called UWEB 2000 – and send it to all employees on behalf of the Security Officer. Through many feedback sessions in which I called in managers and communication experts from Denmark, Germany and Israel I built the final version of the content and the questionnaire. This helped me understand various requirements and manage them in a consistent manner so that all parties will agree with the same concept and implementation. Furthermore, by understanding how SAM* worked I could generate random questions and answers, modify the screen size and the certificate printing preference at the end of the final user training so that it would be according to Siemens guidelines across departments. This way, I improved my skills in corporate communication and helped to increase security issues awareness between Siemens Renewable employees.

Delivering my tasks related to security I worked with the PKI Security Client (the authorization of each employee via the badge to computer) and customized PKI use and access rights. Another step forward I gained valuable knowledge about encryption algorithms and their functionality for file containers, partitions and USB drives was through the use of TrueCrypt (a freeware package). My knowledge was useful for other employees who wanted to use this technology for encrypting their confidential data and I explained through documentation papers how this can be done at Siemens corporate standards.

Administration duties such as meeting invitations, time booking, access and connectivity to applications and systems have been mainly carried out online. A special attention has been awarded to the interconnectivity of applications as well as creating standards instead of developing user or group specific tools.

Since my work complied with the highest communication standards I was asked to complete short and easy to understand short descriptions for all Siemens employees on the following 4 topics: encryption (process, why it is important, risks and benefits, encryption for USB sticks particularities, examples, etc.), phishing (what is it, how can it manifest, how to prevent and
respond to phishing attempts, examples), remote work (connectivity, what does it imply, accessibility) and workplace security (information security, employee duties in regards to maintaining a secure working environment, internal and external communication, passwords and others). These short tasks had the objective of increasing employee awareness in regards to corporate security, in general. They have all been published on the intranet and printed.

- **Oracle**

  The old e-learning tool used in SWP was [OnDemand](#), a solution proposed by [Global Knowledge](#). Siemens had already a server installed in Brand and the library was accessed from only local user accounts. In 2007 [Oracle](#) acquired GK and renamed and further developed the product into [User Productivity Kit](#), keeping the main functionalities. The technology advanced from OnDemand 8.7 to 9.1.0 and then to UPK 3.5.1.0 and UPK 3.6.0.1. UPK provides a collaborative development environment to create system related assets - the "People to System" documentation. As admin user I could rapidly produce materials for all phases of the software lifecycle - from test scripts, system process documents, and interactive simulations, to job aids, instructor manuals, and in-application performance support. I could also create engaging interactive transactional and conceptual content with enhanced sound recording, editing, and playback capabilities to enhance knowledge transfer and ensure best practices. I developed the ability to produce multiple outputs through multiple recording sessions, thus helping other users reduce content development time.

  As the main responsible for OnDemand and UPK I had to know the new functionalities of the new tool: topic-editor in a tab (no dual screen support), automatic recording, override topic and checkout, history of a document: resize column for comments, Print It!-mode, ppt-publication, copy frames, publish content by state, user-rights within library, new player design.

  Moreover, I have defined a project plan for passing from OnDemand to UPK and discussed each step with different teams: review user list and update them through a distribution list by mail notification about changes in the system, configure CAT and non-CAT computers for the use of UPK, do the old, OnDemand library clean-up, training preparation, do a test and an official and final migration between the two environments (announce a cut over start and go-live date, participate in the training delivery). Several test migrations have been successful and it was necessary to take into consideration check-in and check-out options, server features and, nevertheless, connection details for passing from the local server in Brande, Denmark to the global Energy server in Furth, Germany. After my leave, a permanent responsible to whom I have left part of my knowledge and expertise was appointed administrator for UPK and main
contact with the training department and the team in Germany which provides the licenses and technical support.

Nevertheless, my expertise in use of these software programs was strengthened by participating in a 2 full-days professional training provided by an Insikon and external consultant from Siemens in Sweden and Germany at our location in Brande. This allowed me to gain valuable experience in using the tools at a higher professional level. Nevertheless my manager approved my participation even though I was only available for the final 6 weeks of my internship showing to me that my support was rewarded and appreciated.

- **Microsoft**

I was working with Windows XP operating system provided by Microsoft. No other O.S. were allowed and no virtual machines were used. A predefined, common set of applications are installed under the O.S. and their use represented daily work for me: e.g. Office applications (Outlook, Word, PowerPoint, Access, Excel, InfoPath, and Communicator). My work implied defining macros in Excel in order to extract KPIs on a large database of Remedy tickets, connect Excel to Access for better license management under License Watch, define automatic mail generation tools for sending e-mails to a large distribution list from a non-user account in Outlook and others. When the task was ready and the Remedy responsible for the Engineering group agreed with the solution I published a short user documentation file for future developments and updates in which I have stated, from a final user perspective, which are the steps necessary for generating reports easily by managing any external sources extracted from the Remedy system.

Working with **SharePoint** I could set up web-sites, share information with others, manage documents during their life-cycles (one by one versioning) and publish reports to help the reach of better decisions. The learning process presumed understanding basic functions of SPS (SharePoint Portal), SPS (SharePoint Services), learn training video production software: UPK, become proficient in XML, understand ODBC connector, improve database design skills and be more and more familiar with corporate information technology documentation management system and format. By working on the deployment of **Dundas Chart** for SharePoint (data visualization for clients) into the test system and then for the production sites I could test its functionalities and features and later on build interactive graphical designs for easier reporting.

In order to advance in using new technologies the IT group started the investigation of using Windows 7 together with Office 2007 / 2010 in the next future years since the license agreement and support provided by Microsoft will expire in 2014 and processes have to be approved within
3-4 years so that all computers have the new environment configured. A decision upon web applications came as a requirement from the Strategy team and I had to investigate on which web applications are in use at Siemens Wind Power and how they related, at an overview level, with the operating system and other applications (dependencies).

![Diagram showing product groups by complexity](image)

**Figure 12:** First 3 companies’ products are grouped by the complexity of my projects

- **SAP**

Customer relationship management within Siemens is assured via the SAP infrastructure. It was my role to integrate it into UPK and enable users to record topics from SAP directly. SAP recordings were later on used for developing processes and helping with transaction asset at other developing Siemens locations (e.g. USA, China, India and Brazil). One e-learning which was recorded in SAP during my visit at the Business Strategy department, focused on teaching other users of changing transactions into SAP according to specific criteria of purchase orders.

The interactivity between UPK and SAP had to take into account the patch version (from 12 to 18) and the GUI (Graphical User Interface) – currently 7.10. I participated in documenting compatibly issues between versions for each software application and see which functionalities are missing in order to get to use a final, complete and stable version. With technology advancing very fast it was challenging to have the appropriate level and patch on all systems so that users could easily log on to the desired application.
Siemens uses a complete integrated enterprise applications delivered by SAP in order to execute and optimize orders and IT strategies. High interoperability of applications motivated me to find information about compatibility issues such as patch level and graphical user interface version for SAP in order to make it compatible with the right version of UPK.

- **BMC Software**

By responding to the requests in the Remedy system, which is the main incident and task reporting tool, I could interact with the global IT Support team of Siemens. In the beginning of my internship I contributed to retrieving and removing old users from the Remedy tool (mostly the data of employees who left the company in short term - together with their Microsoft Windows usernames) Moreover this platform enabled me to understand enterprise key performance indicators by extracting them from the database and interpret them for managers’ common understanding. It was necessary to extract the case ID for a detailed view of tickets which did not comply with service level agreements. In this sense I have created a large database in Excel and generated reports according to each month from 2010 and sorted the number of incidents and requests for each sub-department: Applications, SharePoint and Engineering. A charting solution was implemented in Excel and afterwards in Dundas under SharePoint and presented during the monthly IT meetings. The management team requested to have all tickets sorted by type, priority, group assigned and month. According to each level of priority: low, medium, high and urgent it was developed an automatic tool as a Macro to automatically (one-click) count the number of tickets, populate the overview table, and change the chart accordingly. The platform was a comprehensive solution for all departments and divisions.

- **IBM**

Lotus Notes have been under my task list for testing for a short-time. A larger project involved searching for licenses and finding out if other IT tools would suite best Siemens expectations for collaboration and innovation while optimizing processes (one example is Informix as collaboration software based on relational and embeddable database). Even though Lotus Notes could theoretically be used only by licensed members / users, in Siemens there was the issue of granting rights to persons which did not use it any longer and redistribute licenses to new employees benefiting from this.

- **Google**

I tested and offered my feedback for introducing to Siemens the location solution from Google; Earth. By selecting a number of computers and creating accounts for registering the professional
(and not free) version of the software I updated my manager with the IT proper use of this application and how it gets the updates from the Google servers as to comply with the final purpose: acquiring this software for organizational usage. The initial requirement from the SIS department (the division responsible for network, connectivity and security aspects) was to find out if Google Earth is an appropriate program running within the organization taking into consideration Siemens policies. My knowledge revealed that this software application installs automatic updates even if the user un-selects this option when installing. I have found several ways for deactivating this updates (from within the application, from the operating system and from user settings) and send my documentation to the responsible from SIS who will took this into account for not including it in the Software Installation Manager.

- **Citrix**
My curiosity for project management software led me to understanding how virtualization works under large scale software projects. The preferred tool is Primavera (developed by Oracle since recent years, solution for project portfolio management) for managing and controlling project related activities (resources representing labor, materials and equipment are used to track costs and time for various projects) while Citrix was chosen for virtual desktop access and cloud computing. I used these tools for my professional gain as end user.

- **Adobe**
Since some of the licenses at Siemens seemed unfamiliar for me when categorizing applications I installed and used Adobe products such as Acrobat, ColdFusion, Dreamweaver, Flash, Illustrator, InDesign, Photoshop Elements, Distiller, Creative Suite, AIR, Captivate and Fireworks. In this way I could help my organization decide which of them would be chosen for future use and which substituted by other products.

- **Autodesk**
AutoCAD, Inventor and LT are the world’s best known engineering software tools for conceptual design, manufacturing, building, construction and engineering and Siemens wind turbines rely heavily on designs in these applications. My role was to assist the Engineering department - the team leader especially – to determine which incidents related to it have been the most important in the past half of year in order to see what can be improved from a support point of view (i.e. defining indicators for department’s performance). As one of the most important engineering tool Autodesk had to be continuously monitored and supported. I assisted in directing the requests to the right responsible and modify category and grouping categories.
Other

Fotostation, as the main picture enhancement platform (contrast improvement, color management, automatic quality improvement by reducing unwanted effects), was bought by the licensing department in the name of the Communication division. My role was to configure the installation and options for this application as well as setup related applications consistency (e.g. various versions for QuickTime – starting 7.6 – were not approved under the Software Installation Manager and thus the application itself was in danger of not being used even though the license was already paid). I did the installation and configuration (activation, management of temporary files and licenses) of Fotostation 6.0 Pro Windows Stand-Alone by registering on the Fotoware.com website and managing Siemens licenses for the 2 computers and users in Brande. For the activation the application needed a footprint (stored in a .xml file) of the machine together with user information and the license number. I activated the file and deleted temporary files which blocked the user account and the primary owner of the computer could not log-off or restart the PC. The Fotoware solution was chosen, together with Adobe Bridge from Adobe Creative Suite 4 for example, for image, graphics, audio and video files (together with Adobe and Microsoft Office documents) organizing in a simple and efficient way. I developed a documentation guideline for the installation and configuration as per finalizing and completing the task.

I also identified and compared security software related to the topic of encryption. The InfoSec department wanted to know which tools there are available within the organization for the use of encrypting applications and I was responsible for designing an overview of them. In the same way I searched for what types of PCs and laptops there are in order to track the evolution of technology and better understand technology changes in the future. My help regarding the wireless network proved to be essential by fixing the connection when this was not working in the IT applications and SAP building for a few days. By accessing the SharePoint user list from a master account I removed and edited users’ access rights as per change in the departments (new users, retired users, and change in user rights, etc.). All together, in the large SharePoint workspace available for all employees and departments, I contributed to generating monthly reports on usability statistics for all sites (e.g. Administration and organization, Business improvements, Global Sales and Proposals, Pricing strategy, etc. for Offshore regions: EU, APAC, North America, etc.), wrote documentation and published it in the intranet workspace after receiving the final approval decision.
6. Results and achievements

My greatest achievements were correlated with knowledge, user expertise and skills gained. Mostly, my results depended on other colleagues’ work and the dead-lines we fixed during our meetings which were always followed and even shortened.

I consider as my greatest results: the fact that I have been certified as an expert Oracle User Productivity Kit user after the training (even though I gained a certain level of knowledge before the training due to practice sessions), respected all of my dead-lines, contributed at my best to each project in which I was involved whilst also being a team-player.

I helped the organization reach its fiscal years target by involving the necessary amount of physical and human resources in projects.

The many online preparation programs available at Siemens allowed me to participate in numerous online trainings such as the New @ Siemens training during which, just at the time of starting my duties, I began to understand how Siemens is structured as an organization, how processes are followed and approved, what is the impact of employee work during all steps of product life-cycles and many others. The Global Competition (general training to help employees
avoid violations of global competition laws focused on the general principles common to the
different systems of competition law found in many countries while exploring the threshold issue
of whether an agreement that restricts competition exists and explains different types of
agreements between companies) and the Global Bribery and Corruption Awareness (general
training for the prevention of global cases of bribery by creating awareness for the issue of
bribery while explaining how to identify bribery and which anti-bribery laws for the protection of
the general public exist globally) trainings, which I completed later on as part of the Global
Compliance initiative at Siemens helped me to extend my overview of the company towards
other areas. After completing both of them I have been awarded a certificate according to my
answers in the knowledge assessments tests.

At the time of department and team meetings I was mentioned for completing my tasks at a high
quality performance in front of other colleagues and managers. Many other times, at the moment
of completion of my tasks, I received the appreciation and consideration of my manager and
other team leaders for the solution I have provided. Team work was the best “tool” to use on both
short and long term. This being one of the greatest achievements I could always expect to receive
help and to offer help when the IT topic of discussion changed rapidly between one application to
another, between one requirement to the next and especially when we were all interested in
finding the right solution as soon as possible.

Through participating in meetings with other interns at Siemens I exchanged ideas related to
daily work so that our cross-departmental collaboration would benefit many areas ranging from
IT to Marketing and even Human Resources.

The 3i Sustainability Idea Contest, proposed to all employees in order to generate innovative
ideas with a high impact for Siemens operations, allowed me to synthesize a few of my ideas,
publish them and give feedback, comments and inputs upon others. My ideas were: extension of
wireless network connections (It was developed on the use of wireless networks for all IT
resource accessibility with the purpose of replacing the standard LAN networks with highly
accessible and easy-to-connect wireless networks. The main benefit would be the fact that
employees will spend more time doing their jobs instead of plugging-in and out together with
changing network settings and customers will also save time by choosing the “Guest” account for
log-in.), introducing digital signatures at Siemens (moving from real signature to digital ones for
internal documents – at least. Main benefits include reducing the chain for passing documents
from one responsible to the next for signing, saving paper, shorter-time order transfers and
increasing speed for business processes. The technology is already on the market – e.g. within
banks - and it just needs to be used extendedly) and having an internal exchange market for IT and non-IT items (by a simple access employees can buy, sell or swap items with fellow colleagues from all-over the world and not just from their departments or branch division). They all have received considerable attention in the overall evaluation process by the evaluating committee and have generated future discussions (in the Siemens idea forum), detailed evaluations of the ideas and new related innovative ideas inside the same topic.

Personally, I am very proud of developing a nice working connection with my colleagues and my manager, especially, due to my hard work and passion for everything that I did. Their respect and appreciation for my work meant more than anything and I was extremely happy to see how my contribution helped the entire department grow steadily, developing more and more complex tasks and IT infrastructure. In the same time, the communication with the other departments increased positively in such a way that everyone knew better who is responsible for which task, project or application.

![Figure 14: Main achievements listing](image)

I managed duties of high complexity and diversity and would name this as one of my greatest achievements. Both hard (information management, requirements needs, analysis, filtering, interrogation) and soft (presentation, public speech, chat, off-line communication) skills had an accelerated evolution and I could see how the entire group became one of the most performing.

On the other hand, I attended as many as possible online preparation courses and received, after successful completion, numerous certificates. Application management was an excellent process to be involved in except the times of maintenance for some systems and IT infrastructure when upgrade was necessary.
7. Impact of my work

My position within the different departments and responsible persons is best described by the organizational diagram from above (it includes same and higher level responsibility and representatives).

Following a bottom-up explanation, I start by mentioning that I was officially part of the Applications team within the Applications department (managed by the Head of IT Applications, Preben Lund), similar with other 2 teams, namely SharePoint and Engineering. My role as an intern involved working with representatives from the other 2 teams (e.g. SharePoint administrators and site responsible and engineering team-leader, operating systems admin, Remedy contributor and other interns) as well as members from the team I was part of: applications team-leader and other interns.

Moving further up, the role of IT applications was marked as the connector or chain between the IT infrastructure (hardware and software) and Business IT (demands from Business divisions).
Working with other colleagues from other departments meant contacting and reporting to the Training Manager (for training organization and delivery), IT Project Manager (generally for all complex projects), Business strategy representative (combine IT strategy with the Business strategy and provide solutions for data analysis, for example), Information Security Officer (prepare online trainings, recordings and questionnaires for making sure that the largest proportion of employees are familiar with IT compliance means for information security), Export Control Systems Manager (for the use of encryption of confidential data on Siemens storage devices), License Manager (for an overview of licenses, in both digital and physical format and installation of software) and finally and most important, to the Head of Siemens Wind Power IT (who needed an overview presentation and status of how IT systems resemble together).

To conclude, the impact of my work at Siemens was set, from the beginning, at a large scale. I helped with managing applications and IT infrastructures from the highest level of overview inside the company and across other divisions. I supported organizational development on short, medium and long term (e.g. access rights for users to the new e-learning platform for short term, data extras and interpretation from the incident and request management system for medium term and evaluation of software licenses on long term). Personally I am extremely satisfied with the way my tasks have been outlined between those of my colleagues and together with the internship development plan set up with my manager with every task. In time I gained a stronger role inside my department and I was happy to share my experience and knowledge with new colleagues when the projects I was involved in grew in complexity.

8. Mentorship

During the last several weeks of my internship I was offered the chance of couching another two interns. My main tasks were to introduce both of them to social networks as Moellebanden (http://www.moellebanden.dk/en), International Association (www.internationalsociety.dk) and others, explain where to find the office supply room, inform them that it could be useful to have a Jour Fixe and also to have a target setting and a development follow up with their department mentor, tell them about my tasks in order to let them know what could be interesting assignments they could also ask to take over. The mentorship was all-in-all a very positive experience, both for professional and social reasons. I found new friends and I could easily listen and adapt to what they needed to know in order to have a nicer and easier work every day. This will help me in the next future years, to keep closer connections and to be efficient with daily tasks. As I have
understood from the very beginning, developing social networks is one of the highest competitive advantages and was highly appreciated by my manager and colleagues.

VI. My future (PhD)

While pursuing my studies at École Polytechnique, in January 2010, I applied for a PhD program at École Polytechnique Fédérale de Lausanne, but it was not sooner than at the mid-term of my internship that I had the interview and e-mail correspondence with a representative from the Swiss University. By the end of July I was confirmed as a research assistant and doctorate student at EPFL starting the 1st of October 2010 by following the program for the next 4 years (my first semester – from October 2010 to February 2011 - will contain only research work: participation in conferences, discovery of main concepts and reading articles related to my research field and for the other period of 3 and a half years I will combine my studies with research and teaching activities). I received with the greatest happiness the news of studying at EPFL and thought about how much everything which I have done both at the academic (the high standards in teaching and learning École Polytechnique, the quality of information, tasks, assignments and especially the way of rational thinking have been decisive for my development and skills) and professional levels till now helped me to achieve this great success.
Recommender technology

My research interest will focus and grow on the areas of social recommender technology and knowledge management systems. Enabling complex information systems to adapt to user preferences and offer best offers in the shortest possible time will be the fundamental basis while structuring information and making it appropriate and useful for the end-user through means of accessibility will be strongly related to the same research field. I will combine knowledge from multi-disciplinary fields that I studied such as system architecture, knowledge management in multi-agent systems, decisional theory, application design, support and preference-based systems and IT networking. I am already extremely passionate about user-adaptive software tools which transform information into knowledge in the mind of the user as helping the information systems develop into recommender systems.

VII. Conclusions

The development path of the internship at Siemens Wind Power A/S can be seen from 3 levels: the IT and knowledge development level, the management level and the self, intern (employee) level. Working at Siemens offered me the chance of performing my best within an expanding company with a growing demand for complex informatics systems, according to my pre-settled expectations. I have found the right environment for future understanding, testing and extending my knowledge in the IT field while working with large-scale systems (provided by Siemens, Microsoft, IBM, SAP, Google, Oracle, Adobe, BMC Software, etc.) according to my academic background (collaboration, networking, security, sharing, database, e-learning, training, content management, web-editing).

The high-level Master’s program in science and technology at École Polytechnique combined perfectly my improved education through intensive studies on multi-disciplinary areas with one semester internship during which I fully exchanged my ideas in regards to what I learnt. I can say with great sympathy that my Masters program offered me the best possible output in terms of knowledge gained and experience obtained. When being in the university campus I found the right balance between classes and self-reflection while when doing my internship I focused on the skills improvement side. The Robot Challenge competition for which I took part in the winning team was a very nice step ahead for my team-working and collaborative activities at my
internship at Siemens. Furthermore, I could easily identify the precise requirements for the tasks I have worked on in order to be able to solve these tasks in an efficient manner and at high standards. Similarly, I got rapidly introduced to modern technologies, software architectures, modeling, database management, system conception and realization, decisional and distributed systems project management and delivery, at all steps of system engineering: integration, verification, validation, qualification, certification, acceptance, for which I already had the knowledge passed over to me during my studies.

Starting with personal career interests, strengthened on the idea of following my professional development in the area of computer science, moreover working with large informatics infrastructure, I was challenged in finding the appropriate system architecture solutions, requirements analysis and project planning within the largest European conglomerate. My progress was extremely fast and continued with more and more complex tasks and projects. In this way my collaboration with my company became more and more fruitful as per my involvement and dedication to my work.

I have chosen Siemens in Denmark as being my best option and seen my progress through every learning phase of my internship: from working alone on small tasks to solving large demands in big teams across departments and even countries. Working with colleagues from all-over the world allowed me to adapt rapidly to local customs and global strategies. The international atmosphere was very nice and I appreciated people’s drive to succeed by never giving up and combining their knowledge together at all times. The completion of assignments relied on everyone’s commitment and I gained excellent coordination, planning, and presentation and time management skills. In addition, I was offered the chance of helping the organization by rapidly and precisely solving assignments while working on my own and finding the right answers in team-building sessions and during meetings with my manager – which have always followed my development path by free choice of tasks and responsibilities in projects. I was very pleased of passing my knowledge to new interns also.

In conclusion, the internship report presented an in-depth evaluation of self-professional experience in terms of expectations and outcomes, tasks and complexity, IT technologies and academic background, work experiences and results and impact of work. Nevertheless it shows the internship’s relevance in accordance with past and future self-development path (the passing from Masters to PhD through a solid professional experience at Siemens) and outlines its contribution in all phases to achieve success and gain more advanced skills.
Contact information

Siemens Wind Power A/S
Broupvej 16
DK-7330 Brande
CVR-No. 76486212
Fax: +45 9999 2222


Internship Manager: Head of IT Applications: Preben Lund
Phone: +45 9942 2253
Mobile: +45 2144 2506

Head of Wind Power IT: Frank Stieglitz
Phone: +45 9942 8066
Mobile: +45 3037 6737
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