Case Study: University Paper Publishing System

COMP6226: Software Modelling Tools and Techniques for Critical Systems

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Problem Statement – An overview

- Our university, as a worldwide centre of excellence, is renowned for its high-quality teaching and innovative research. We publish hundreds of academic papers each year via our publishing department. We have been publishing ground-breaking papers for decades, which is where the conundrum lies. Our publishing methods haven't undergone significant changes in the past decade, posing a challenge as we struggle to manage the growing volume of papers from an ever-expanding university community.

- Although our press centre has unparalleled knowledge and skills in the academic peer review and publishing processes, we are not up to speed with modern technologies and do not fully comprehend how to leverage such technologies to our benefit. We did upgrade our process to an email-based system many years ago, but we are now looking to move into the 21st century technologically.

Overarching Goal

- *To automate and improve our peer review process*

The main areas we want to address

- **Reduce the time to check** whether submitted papers adhere to the University's publishing guidelines. They currently have to do a visual check of each submitted paper, which takes a lot of time and effort.

- **Reduce the time it takes to provide feedback to authors.** This is currently done by exchanging emails with attached documents.

- **Make it easier to find and notify paper reviewers.** Right now, they have a written list of reviewers, whom they contact by letter, telephone, or email in order to ask them if they can peer review a paper.

- **Create a secure way to transfer and review academic papers.** The reliance on email has caused some papers to be sent to the wrong recipients, by accident, and even had some emails intercepted by man-in-the-middle attacks. This resulted in the leakage of confidential and commercially sensitive information, which has caused a great deal of embarrassment to the University.

Eliciting requirements

- Conducting first meeting with our client with the following objectives:

  1. Get to know the stakeholders and their role in the process we are implementing

  2. Obtain a basic understanding of the stakeholders' expectations

  3. Understand the stakeholders' goals and identify which capabilities we need to deliver in order to help them realise their goals

Initial stakeholders

- Professor Priya Chakrabarti, the editor-in-chief of the Press Centre

- Dr. Elizabeth Braddock, the University's IS manager

- Dr. Tom Logan, the Press' Managing Editor, but he is currently away

- We used interview as a method of eliciting requirements

The Editor-in-Chief (EiC) interview

both actor and non–actor has domain and business goals.

- **Us**: So, Professor Chakrabarti, could you please tell us what your role in the Press Centre involves?

- **EiC**: I have oversight of the whole review and publication process. It is my responsibility to ensure that everything runs smoothly, issues are addressed, and our operation fits in with the University's policies and goals. general one

- **Us**: Are you involved hands-on with the review and publishing process?

- EiC: The day-to-day activities are handled by Dr Logan, the Managing Editor. He's the one who approves papers for publication, manages the review process, and collates reviewer feedback. I just review the outputs and give final approval for paper publication. Tom is very busy and unable to handle any further increase in workload. I would like to be more hands-on, but I'm also busy with strategic and administrative work myself. We're hoping your system will reduce Tom's workload so that he is not so stressed all the time.

specify the stockholder to ensure we don't omit any goal related to them

The Editor-in-Chief (EiC) interview – Cont.

- **Us**: What are these outputs that you review and how do you review them?

- **EiC**: Every paper is submitted to two peer reviews. Dr Logan coordinates the feedback and necessary corrections and, once no more corrections are required, he emails me the paper, the reviewer's summary, and his recommendation. I review everything and I then approve or reject his recommendation, which is whether to publish the paper or not.

- **Us**: Do you ever reject Dr Logan's recommendation?

- **EiC**: It's extremely rare. I have confidence in my Managing Editor Dr Logan may be a bit eccentric, but he is very thorough in his work.

- **Us**: How do you approve or reject a paper?

- **EiC**: I just reply to the original email.

The Editor-in-Chief (EiC) interview – Cont.

- **Us**: Is your email digitally signed or encrypted?

- **EiC**: Emm…no, I suppose.

- **Us**: So how would Dr Logan know that the email is really from you? It's very easy to spoof emails.

- **EiC**: Well, he assumes it is. Also, when I see him, we will usually mention it.

- **Us**: I see. But Dr Logan is currently away, so he won't be able to mention it in passing for the next 2 weeks at least.

- **EiC**: Yes, I guess that's true.

The Editor-in-Chief (EiC) interview – Cont.

- **Us**: What would happen if we don't deliver the new system, and you keep working the way you currently do?

- **EiC**: Well for starters, I would have to hire another Managing Editor to ease Dr Logan's workload. You don't know how hard it is to hire good MEs these days.

- **Us**: Are you at all concerned with emailing potentially sensitive papers back and forth?

- **EiC**: Indeed I am. We had an incident a few years back, where a reviewer emailed a paper with confidential data to the wrong person. Luckily, this was an honest person who notified us immediately and no damage was done. But this is a risk we are taking, if we continue working as we are.

- **Us**: Thank you for your time, Professor Chakrabarti.

The IS Manager (ISM) interview

- **Us**: Dr Braddock, what is your role within this project?

- **ISM**: As the University's IS manager, I am overseeing all IS system development and

- deployment. My main concerns are with security, compliance, and integration.

- **Us**: Ok. Let's start with security. What are your security concerns?

- **ISM**: Obviously, attaching sensitive files to email is inherently insecure. Also, I am concerned that some of these files, especially ones that support embedded macros, may be a carrier for viruses and other malicious code.

- **Us**: Don't the editors and reviewers virus-scan the files?

- **ISM**: They are supposed to, but you know how people are. They sometimes forget or are too busy to do so.

The IS Manager (ISM) interview – Cont.

- **Us**: OK. What about compliance?

- **ISM**: The University prescribes a strict policy for auditing and reviewing the publication process. Currently, this policy is difficult to implement, as it means following a convoluted trail of emails and attachments. I would like the new system to make it easy to see what happened to a paper from its submission to its publication.

- **Us**: Understood. And what are your integration concerns?

- **ISM**: All university systems, like the one you will develop for the Press Centre, need to be able to play well with **the University's Information System** (**CUIS**). CUIS provides interfaces for user authentication, resource management, and other things besides.

The IS Manager (ISM) interview – Cont.

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- **Us**: Thank you for your time, Dr Braddock.

Emailing The Managing Editor (ME)

- We then send Dr Logan, the ME an email, asking him if he could tell us the following:

  - What is his role in the review and publication process?

  - Which part of this process would he like to see automated by our system?

  - How does he hope our system will benefit him in his role?

  - What would be the consequences for him as ME if our system was never delivered?

  sometimes through analysis of the some initiated information we will find new stakeholders(authors and reviews)

Dr Logan's Reply

- *Hello. Let me tell you, I can't wait for your system to be delivered. I have hardly time to eat or sleep nowadays. You can't imagine how hard it is to get two reviewers to review a paper within the same time period. I have to keep emailing people again and again. They are either too busy or just can't do the review within our deadlines. It's a nightmare I tell you. And don't get me started on checking each submitted paper just to make sure it adheres to our guidelines (I am attaching a copy of these, BTW). I have to do that every time an author submits a paper. It would be awesome if I didn't have to do that; it takes so much time.*

Analysing requirements

- Your Task for the next session on Monday

YOUR QUESTIONS