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SCHOOL OF MEDIA ARTS AND TECHNOLOGY

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Researching, designing and testing a cloud-based resource scheduling application for small – medium sized creative teams

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# **Acronyms**

IA – Information Architecture

UI – User Interface

UX – User Experience

# **1. Introduction**

The Gantt chart was created in 1903 by Henry Laurence Gantt with the purpose helping to manage and plan projects according to Trainer (2012). These charts are used as a visual way of documenting the duration of a project and its progress. Gantt (2016) reveals that years ago these charts were prepared by hand, however in a projects life-cycle schedules change and this is a natural occurrence. When this does inevitably happen the Gantt charts need to be amended / redrawn in order to remain consist with a projects schedule. As soon as the Gantt chart comes out of sync with the project it becomes redundant. Managing client expectations then becomes impossible. On both small and large scale projects this was not a convenient medium for Gantt charts to exist.

When personal computers became available in the 1980s, digital and more complex Gantt charts could be created. This meant that the natural changes in a projects life-cycle could be better managed and conveyed to teams. Paymo (2016) states that as Gantt charts became accessible on web-based application the popularity of this project management tool increased. Gantt charts are one of the most popular project management scheduling tools in the creative industry according to Heaton (2016b). These charts became digitalised over 100 years ago, yet user’s needs are still unfulfilled, especially within the creative industry.

This project is a result of the team at The Idea Bureau wanting to create a product to help solve the issues with managing projects in creative teams. The Idea Bureau is a small digital workshop located in Taunton, Somerset. The company’s ethos is to create engaging digital experiences that have a positive impact around the world. After having tried and tested a vast amount of project management tools in the industry, The Idea Bureau feel that it is now time to design and build a tool that can work for creative teams effectively. The Idea Bureau’s website can be found at [www.theideabureau.co](http://www.theideabureau.co) and Figure 1 provides a preview of the website.



**Figure 1 – The Idea Bureau Website**

Working alongside the team at The Idea Bureau is going to involve being in constant communication about the different phases of this project. Having regular meetings and check-ins will be essential in the progression and high quality delivery of this project.

# **2. Aim and Objectives**

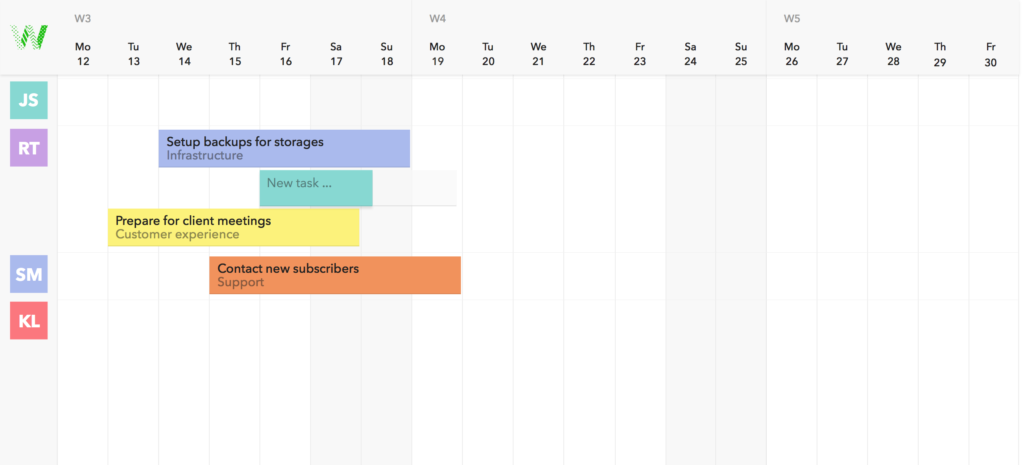
The aim of this project is to identify the growth in the creative industry and how there is a demand for project management tools within this industry. A suitable solution will be designed based on users needs and the final output will be a clickable prototype.

1. Carry out research into the history of Gantt charts and the progression over the last 100 years, competitor’s analysis, the growth of the creative industry and how these charts are currently used in the industry will be carried out to gain a solid understanding. This research will be achieved by 19th March 2017 and roughly 50 hours will be spent on this.
2. Carry out quantitative and qualitative research into user’s behaviours to an industry based standard. The data gained from this will inform design solutions and the overall user experience of the end product. 10 hours will be spent on this and it will be done by 29th March 2017.
3. Analyse research findings in order to identify trends and anomalies before moving forward and creating personas, user journey’s and empathy maps. A UX workshop will be essential so that research findings can be shared with the team at The Idea Bureau. A total of 20 hours will be spent on this and it will be achieved by 4th April 2017.
4. Using the research gathered wireframes and rapid prototyping will be done to allow for exploration of IA and UI components. This will be done by 13th April 2017 and 10 hours will be spent on this.
5. This will result in high fidelity designs created in Sketch, an industry standard UI design tool. These designs will then be synced with InVision to create a professional prototype for user testing purposes. 50 hours will be spent on this and it will be finished by 23rd April 2017.
6. The final clickable prototype will be tested on 5 users at Southampton Solent University. All of this data will be analysed and necessary design improvements will be considered. 15 hours will be spent on this and it will be done by 3rd May 2017.

# **3. Literature Review**

With milestones and deadlines constantly changing, project management is a difficult task, no matter what sized team. Teams can easily fall behind if there is no effective guidance and tracking from a project manager, and this is why Gantt charts are a beneficial way of dealing with client / team member’s expectations. Nishadha (2012) reveals that Gantt charts provide a visual representation of the project pipeline and what is expected.

A Gantt chart is the best graphic available for project managers as it is the most useful and insightful diagram. Figure 2 shows a basic diagram of a Gantt chart.

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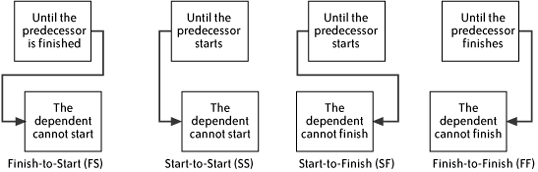
**Figure 2 – Basic Gantt Chart Diagram**

However, Gantt charts do come with issues. The common errors behind these issues are:

* Providing too much information
* No consideration for version control

It can be tempting to start adding multiple layers to Gantt charts, but this only increases the upkeep and is visually overwhelming. As a project evolves maintenance is required and more often than not there is no backlog showing the history of a project. Harper-Smith and Dery (2012, pp. 141 – 142) writes how having the visual understanding of a projects evolution is priceless.

In recent years drag and drop functionalities have been implemented into most online Gantt chart software. This makes it easier to add tasks, create dependencies and update timeframes according to John (2011). Dependencies have become a staple feature and they are used between tasks that occur chronologically in a waterfall methodology. This means that if a task is delayed then the remaining project pipeline will adapt to accommodate for this writes Valdellon (2014). Dependencies refer to data relationship between tasks and there are four main types. These are finish to start, start to start, finish to finish and start to finish. All of these could exist within a single Gantt chart project reveals Project Insight (n.d). Figure 3 is a diagram showing how these four types of dependencies appear visually.

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**Figure 3 – Types of Dependencies**

There is an ongoing debate as to whether or not Gantt charts can fit into an agile workflow. Woo (2014) explains that Gantt charts are still beneficial as they are quick to communicate whether a project is on track. Dependencies are also a crucial feature needed, even in an iterative process.

Within an iterative process there are still layers that make up an iteration or a sprint and these can be visualised in a Gantt chart. However, Sutherland (2006) who invented Scrum in 1993 (a smaller version of the agile methodology) banned the use of Gantt charts. This was because even after the first working day the chart would be outdated and the maintenance of this would be too much. Even after 13 years Jeff Sutherland still frowned upon mixing Gantt charts with an agile / scrum methodology. Croft (2015b) reveals that there has been a lot of competition and rivalry between the two methodologies and which ones are suitable for managing creative teams. Waterfall, agile and scrum methodologies are the main contenders but they all bring advantages and disadvantages. Agile and scrum do not allow for planning of duration and costs, which is why Jeff Sutherland was against the usage of Gantt charts. However, the cost and duration of a project contains key information that should be communicated with clients. By breaking down the iterative sprints into phases this can be clearly documented in a Gantt chart format effectively.

In today’s industry it is rare for there to be single teams working on projects, it is becoming much more of a collaborative process. Naturally this is making managing projects more complex. Especially when there are multiple teams dispersed in different locations. A Gantt chart can help to become a central place for al teams involved, whilst also providing higher level insights for management according to Horvath (2106).

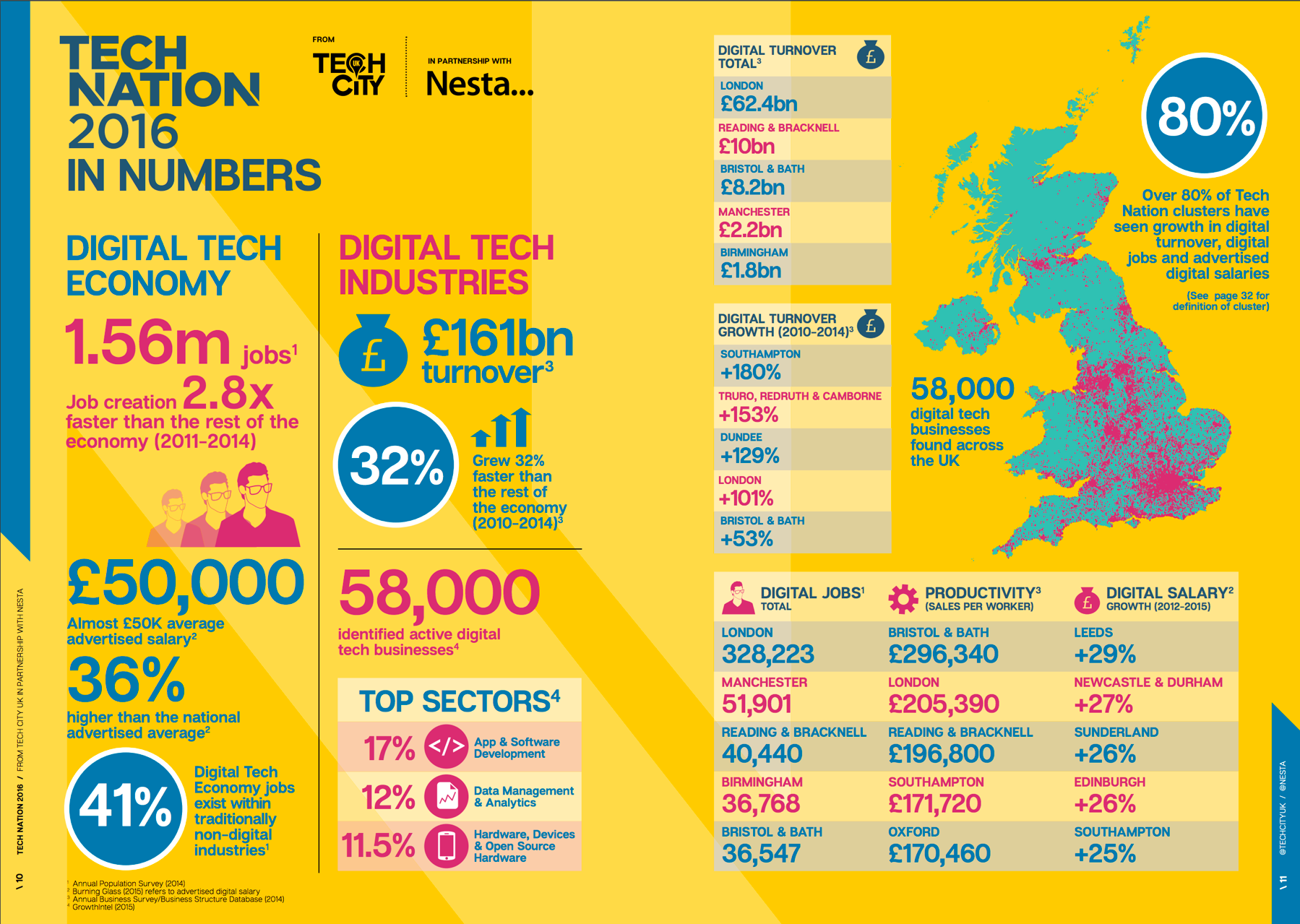
By having a central place for team members it means everyone is on the same page with upcoming milestones and deadlines. Collaborating effectively is key to completing projects on time and in budget. Having a visual representation of tasks helps to put projects into perspective for users. This means that if one member misses a deadline, then the member is aware of the implications on the rest of the current / other projects reports Proof Hub (2016). Croft (2015a) states that when making estimates for the duration of tasks and working within client budgets it is essential to double check with team members. This is because the team members are the ones completing the work, so if there are any issues then this can be addressed earlier on. For effective planning it is important for team members to communicate realistic timeframes in order to show a realistic implementation of the project pipeline. Whilst also allowing the project manager to handle client expectations professionally and effectively writes Meredith, Mantel and Shafer (2016, pp. 272 – 273).

Paula (2016) argues that contingency planning is a really important process in order to identify and deal with problems in a calm and effective manner that have the least impact on the project pipeline. Contingency planning is about knowing what can be done to prevent problems arising and ways to reduce the risk of this happening. Risk management and contingency planning go hand in hand for effective project management states Webster (2014).

Lindenthal (2016) explains that one of the biggest reasons why projects fail, alongside poor management is scope creep. All the small extra tasks that get agreed to along the way add up and without clear insights into the project plan it is difficult to understand the implications. Scope creep often occurs once the project is already underway and clients increase expectations according to Stachowiak (2014).

Aldahleh (2014) reports that Gantt charts are not a suitable method in modern professions. It can be seen as a counter productive method and discourage innovation and creativity. Gantt charts that rely on dependencies showing team members the direct impact on future phases create too much pressure for professionals. The first idea is not also the best idea and presenting deadlines and dependencies could hinder creativity. Within the creative industry projects life span is usually scheduled over a few months, if not more. According to Aho (2013) Gantt charts are not suitable for projects that last over 2 -3 weeks. This is because the maintenance becomes too much work and there are too many conflicting variables. On the other hand, projects spanning a few months can be broken down into weekly sprints if needed. But this approach very much depends on the project manager and the level of detail. Sehlhorst (2007) agrees with Aho (2013) in saying that Gantt charts are only effective for immediate plans and the value decreases when long term scheduling occurs.

The purpose of this project is to create a Gantt chart for creative teams and the 2016 Tech Nation report states that there are now 58,000 digital businesses in the United Kingdom alone. 17% of these business are built up of software and app development companies, this makes up for the top sector according to Smirke (2016). Figure 4 provides a clear overview of findings from the 2015 Tech Nation report. The tech sector allows for Britain to have a competitive edge, which transforms the economy and changes day to day living reports Tech City and Nesta (2016). There has also been a rise in the number of small independent companies stepping into the creative field explains The Independent (2011). Whilst this is referred to as a creative boom, it is important to understand that these companies are working together in partnership and thrive together. It is not about stealing and pitching for the same work, it is about establishing a solid creative community writes Blackwell (2015). With this creative industry boom it is easy to establish the need for better project management tools, even for smaller sized teams.



F**igure 4 – 2016 Tech Nation Report**

All of these studies present insights into the state of Gantt charts and how they can fit into different workflows. The 2016 Tech Nation Report reveals that with the growth of the creative industry there is a need for more project management tools that cater specifically for these needs.

**4. Project Specification**

# **5. Methodology and Design**

# **6. Issues arising from Implementation and Test / Conduct of the Investigation**

# **7. Results**

# **8. Evaluation and Conclusions**

# **9. Recommendations for Further Work**