

#### Industry Project Part 1 CONS 7821 Literature matrix

## Notes on preparing the literature matrix

Although you have been asked to keep in mind a specific application of your topic area (eg the case study, interviews, statistical analysis, etc that you might do for Part 2), your literature should address the wider topic rather than any particular example. You are likely to find as you read that some of the things you thought you knew about your topic are not correct, or are only part of the story, or that there are other ways of thinking about it.

### Part 1 - topic statement and defining your themes

You need to write about 800 – 1000 words (2 A4 pages) to describe and define your topic and the key themes that you are focusing on in your review of the literature. It is a good idea to do some preliminary reading around the topic and work out what the themes are first, then go back and organise what you have read according to those themes.

- State your topic.
- Define the key terms used in your topic statement. Use literature to establish your definitions (eg, quote a definition used by a leading researcher, or come up with your own definition based on definitions provided by several other authors.)
- Identify the 4-6 themes that you are using to organise your reading and thinking around your topic.
- Provide definitions for any key terms used in the themes.
- Give an explanation of each theme and summarise the main ideas from your reading.

### Part 2 – the matrix

Use an Excel spreadsheet or a table in Word to set up your matrix. Use one row for each source, and one column for each theme. Format your page to A3 landscape to give you enough room to set out the information.

- You need 12 sources, with the majority coming from quality journal articles.
- One source = one book/article/conference paper/website, regardless of how many quotes or ideas you draw from it.
- Use APA 6th format for all references. This includes using a doi or URL for any source found online.
- For each source, summarise key ideas and/or include quotes under the relevant theme/s.
- One source may cover multiple themes, and/or may contribute multiple ideas or quotes within a single theme.
- If you are quoting directly from the text you need to use quote marks " " and a page number. If you paraphrase, the text needs to be substantially different from the text of the source (you can't just change a few words or connect several pieces together.)
- You may want to add a final row to use to note the sub headings or keywords you could use within each theme to further structure your ideas when you come to write (but it is not required).

Identify the specific topic area you are investigating, not the general area of interest (e.g., "Changes to industry roles...", not just "BIM")

Kath Davies

Define key terms or ideas in your topics, using quotes from literature where appropriate

# Changes to industry roles resulting from adoption of BIM

Internationally, construction research and practice are describing a strong shift towards the use of Building Information Modelling (BIM) throughout the building life d finally to demolition. The underlying motivation is the improved productivity, product quality and sustainability that can be achieved through complete protection or a building in a simulated system, before construction begins, and the improved communication and information and physical and functional characteristics of the project" (AIA,

Write a brief introduction to describe and define your Within the scope of BIM-related industry initiatives internationally, the role of ooked. While there is some topic, providing explanation of why your focus on that Provide a brief explanation of each of the themes you individuals using BIM (Succar et al., 2012), most endeavours within the BIM field and processes has on the topic is relevant and of value to the construction industry have identified, and a summary of the main idea(s). Themes: Unlike these brief examples, your explanation should Emergence of BIM spectric A range of roles are developing around BIM, as the focus shifts from the technical requirements of BIM software to the management and pr describe each theme, provide definitions as required, and summarise the main ideas from your reading. See in literature addressing benefits allenges of BIM. the examples from previous students given on Moodle. Definition of roles: In the past few years een widespread development of formal BIM guidelines and handbooks to help to standardise BIM implementation and many of these provide more or less detailed det specialist roles. Not all of the definitions agree, and across a range of international sources there are many different

Recycled roles: In many case studies, the intrody an upskilled version of the CAD operators or ma

Role change and competition: Existing roles m that their own status or activities are not affect unchanged. Both of these patterns are evident in case studies of BIM implementation.

Ideally you should have 4-6 themes. If you have less than 4 your topic is likely to be too limited. More than 6 and you probably need to limit your topic further.

ng production process from CAD to BIM. For these projects, the

which may lead to people trying to "protect their paten" where they try to resist changes to traditional processes and roles so ange so that they can affect the way it is implemented to either increase their own influence or ensure their own roles are

Discipline differences: Some differences are described in how BIM roles are introduced and developed in different industry disciplines. Most literature focuses on architecture, engineering and construction as the main areas of interest.

Your list should be organised in alphabetical

order by surname of the first author.

Skills and training: The skills that different so are variations between what skills are consid

nclude discipline knowledge, software and computer skills, and management and communication skills. As with the role definition, there ng them (through specific training, on-the-job experience, etc)

Reference	Emergence of BIM specialist	Definition of roles	Recycled roles	Role change and competition	Discipline d
Barison, M. B., & Smos, E. T. (2010). An overview of BIM specialists. In W. Tizani (Ed.), Proceedings of the International Conference on Computing in Civil and Building Engineering icccbe2010 (p. p141). Nottingham, UK: Nottingham University Press. Retrieved from http://www.engineering.nottingham.ac.uk /iscsbo/proceedings/odf/of71.pdf	Format your refere standard, ir	Reviewed technical literature ences according to <b>APA 6</b> <sup>th</sup> ncluding doi or URL role variations and combinations depending on project size or professional affiliation.		Head each column Indicate which themes ar and illustrate with a rele or o	with a theme re discussed i vant summar quote
Barison, M. B., & Santos, E. T. (2011). The competencies of BIM specialists: a comparative analysis of the literature review and job ad descriptions. <i>Proceedings of the 2011 ASCE International</i> <i>Workshop on Computing in Civil</i> <i>Engineering</i> (pp. 594–602). Miami, Florida, https://doi.org/10.1061/41182(416)73	"An effective implementation and use of BIM technologies and processo quires the inclusion of new protestic in AEC organizations." (p594)	Reviewed job advertisements in the United States, identified <i>BIM manager</i> as the most common BIM specialist role; th in just 31 advertise different job titles different industry disciplines.	It's fine to include m author, as long as th same ground (e.g	nore than one reference by the sar hey are not just covering exactly the g. the same (or very similar) paper	ne

, while described as a new function, is effectively

fferences	Skills and training
n each source, y, paraphrase	

Reference	Emergence of BIM specialist	Definition of roles	Recycled roles	Role change and competition	Discipline differences	SI
Bernstein, P. (2005). Integrated Practice: It's not just about the technology. <i>AlArchitect</i> Retrieved from http://info.aia.org/aiarchitect/thisweek05 /tw0930/tw0930bp_notjusttech.cfm		You can include a sources (websit newspapers), but mos	couple of non-academic ces, blogs, magazines, st of your sources should be		Difference in focus between delivering the service that leads to a built outcome (the architects' perspective) and delivery of a constructed product (the contractors' perspective)	
Coates, P., Arayici, Y., Koskela, L., Kagioglou, M., Usher, C., Reilly, K. O. (2010). The limitations of BIM in the architectural process. <i>First International Conference</i> <i>on Sustainable Urbanization (ICSU</i> <i>2010)</i> . Hong Kong, China. Retrieved from http://usir.salford.ac.uk/12898/	"Although the paper had a focus on the BIM technology adoption, it is actually as much about people and processes as it is about technology." (p194).	journals or form conference paper	al reports. One or two rs or books are also OK.	Argues that aspects of the architect's role were fundamentally changed, particularly with regard to the creative process. Claim that BIM requires architects to focus on a concrete end product and imposes limits on the despe		
Merschbrock, C. (2012). Unorchestrated symphony: The case of inter- organizational collaboration in digital construction design. <i>Journal of</i> <i>Information Technology in Construction</i> <i>(ITcon), 17,</i> 333–350. Retrieved from http://www.itcon.org/2012/22	Suggests that co-ordination leadership requires an individual (or organization) who has both the technological capabilities with the BIM tools and systems used, and the contractual or financial power to enforce a co-ordinated process.		Case study BIM implementation just a substitute for a traditional CAD system. Illustrates that BIM skills and BIM tools are not sufficient to produce a "full- blown" BIM implementation.		Most sources will include dis one of your themes, so inc relevant th	scu cluc iem
Sebastian, R. (2011). Changing roles of the clients, architects and contractors through BIM. Engineering, Construction and Architectural Management, 18(2), 176–187. https://doi/10.1108/09699981111111148	Notes that a significant development from collaborative BIM approach on case study projects was the emergence of a BIM/model manager role Unless you have accessed a har source from the library, every include a URL (web address identifier for a journal or co	Defines "model manager" as a liaison person who effectively translates and co-ordinates the inputs of the various participants. Different interpretations of the role in d copy version of the y reference should to or a doi (digital inference paper.)		"The project manager questions the scope of the mandate of the model manager, as the model manager is also contracted directly by the client. The architect wants to remain in charge of the design performance." (p185)	If yc i	ou i ncl
<ul> <li>Whyte, J. (2011). Managing digital coordination of design: emerging hybrid practices in an institutionalized project setting. <i>Engineering Project Organization Journal</i>, 1(3), 159–168. https://doi/10.1080/21573727.2011.5977 43</li> </ul>			CAD and BIM production practices are often required to operate in parallel, to accommodate the requirements of stakeholders such as regulatory bodies and clients who are not BIM-ready.	Most of the work pre should be in your quotes s	Architects taking a direct role in model production; engineers tal pass rown words - use paringly contractors not trautionally involved in production of drawings or models.	

petition	Discipline differences	Skills and training
	Difference in focus between delivering the service that leads to a built outcome (the architects' perspective) and delivery of a constructed product (the contractors' perspective)	
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d, I to the that to focus luct and esta		
	Most sources will include dis one of your themes, so inc relevant th	scussion of more than clude notes for each eme
the		
cted he ain in	If yo ii	u use a quote, you MUST nclude a page number
	Architects taking a direct role in model production; engineers	
work pres e in your quotes sp	sented in the matrix own words - use paringly contractors not traditionally	
	involved in production of drawings or models.	