

Design Review Case Study – Assignment C – Solution Landscape

Cell & Tissue Engineering

Introduction

The next phase of your design project is to outline the solution landscape that existed PRIOR to the advent of this new technology/treatment. Remember that these solutions may include surgical, medical (pharmacological), and rehabilitation systems. Some of them may be very basic care maneuvers, while others may be fully patented and commercially available devices.

Part 1: Table of Existing Solutions, Advantages, Gaps

Generate a table of existing solutions including the advantages and disadvantages of each. An example of the table is shown below. It is suggested that you use a landscape orientation for the table. Information to assist you in gap identification may be found below.

	Description	Advantage	Disadvantage or Gap	Reference
1	Title (you can come up with a short descriptor if the technology doesn't have a name) 1-2 sentences describing the solution	Bulleted list	Bulleted list	Include patent number, bibliography style reference or company website
2	Example Meso Biomatrix Scaffold Kensey Nash is developing a porcine mesothelial matrix for soft tissue repair including nerve conduits.	<ul style="list-style-type: none">Naturally-derived matrix facilitates cell infiltration and growth factor retentionEasy to handle surgically (short hydration time durable, deformable)	Matrix material is derived from another animal (pig)	http://www.kenseynash.com

There are many databases that can be queried for prior art and I encourage you to search broadly. Use PubMed, Google Scholar to find published articles and patentlens.net or <http://patft.uspto.gov> for patent searches, and search for companies with related products. You will undoubtedly find thousands of hits – but please limit this assignment to just 3 products, patents or papers. For the final project you will need 5. You may submit all 5 for review here but only 3 are necessary for full credit on the assignment.

Part 2: Summary of Table

Write a paragraph summarizing the content of the table. The paragraph should illuminate classifications of solution types (if applicable), indicate the state-of-the-art (solutions in clinical trials or research phases for example), identify the most commonly used solution and describe the major missing features of existing solutions.



This document is a draft of a section that will be included in your final report. It is intended as a tool for you to get feedback on your progress. It is expected that this document be full-text unless specified and include references. The document should be double spaced.

This should be submitted to Blackboard as a pdf. Resources on proper citation and best practices in online research are located here: http://krieger.jhu.edu/writingcenter/writing_resources/

Please use the MLA format.

Additional Information – Understanding Gaps

Along with knowing the solutions you'll need to identify the gaps associated with them. There are several different types of gaps outlined here: (Reference: Biodesign by Yock et al).

Solution Gaps	Description
Gap between the desired outcomes and the outcomes achieved by existing conditions	As existing solutions are researched and evaluated, think about ways in which they fail to meet the desired outcomes defined in the preliminary need criteria and what may be the cause of their shortcomings. For instance, gaps may be caused by applying an inappropriate solution to a clinical need. Or they may stem from solutions that embody the correct approach, but needed further development or specific refinements to achieve proper results.
Gap between what specific subsegments of patients need and what is offered by existing/emerging solutions	Diseases and disorders often have different manifestations depending on the stage or severity of the condition. Particular subgroups, such as elderly or patients with certain comorbidities (e.g. diabetes) may also respond differently to differing solutions. Accordingly, gaps may exist for specific patient subtypes and/or stages of a disease.
Gap between the outcomes/effectiveness that existing or emerging solutions deliver and their costs	Value gaps take into account the cost of a solution relative to its effectiveness. In an increasingly cost-sensitive environment, where facility administrators and purchasing managers are playing a more dominant role in adoption decisions for new medical technologies, value gaps must be addressed by driving up effectiveness, bringing down costs, or ideally accomplishing both.

Grading Rubric

Page Limit (1.5), Final Point Value (15/100)

Place Case Study Topic in Header

Reminder drafts are worth 50% of the final point value (7.5/100)

Points	Component	Description
4	Content	Table of at least 5 of existing/competing solutions including descriptions, advantages and disadvantages and references. Paragraph summarizing the content in the table. (Each solution should be referenced)
2	Organization and Structure	Clearly organized content with natural progression and structure. Informative subheadings and classifications of solutions when necessary.
1.5	Writing	Superior narratives and analyses that are clearly and simply written. References included as appropriate.
7.5	SUM	

