

Living in a world of people, it is hard to believe that so many products and services don't revolve the understanding of human needs nor solving human-centered problems.

Our goal is to make all of you curious on how to build human-centric products and services.



PAXCEL TECHNOLOGIES
— PASSION FOR EXCELLENCE —



Maneuvering agile requirements using Design Thinking Framework

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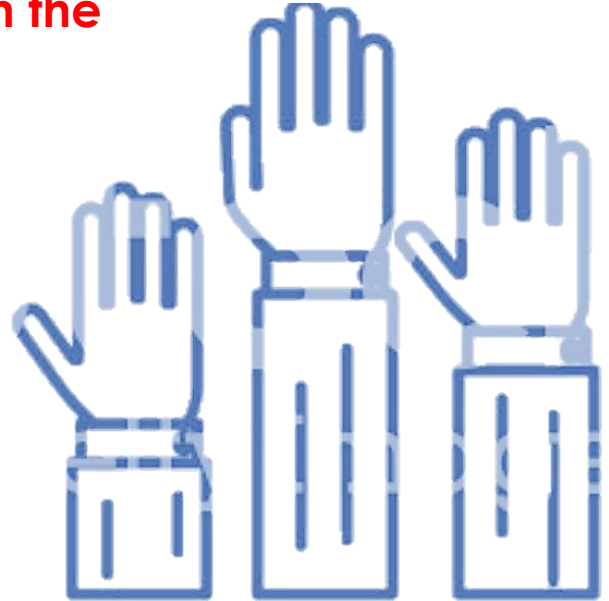
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How many of you know design the thinking process?

How many of you have used design thinking?

How many of you have used design thinking in government initiative?




**Human
Centered
Solution**



Happy Users


**Innovative
organization**

So you got the contract

- **Government Regulations**
- **Fixed Scope**
- **FIXED Budget**



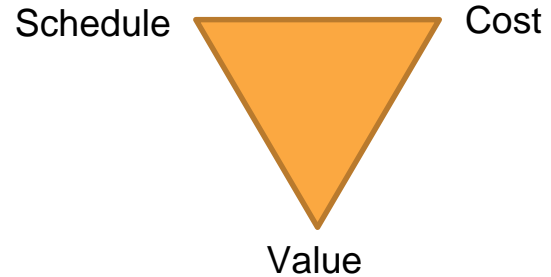
Outcomes for you today

1. Understand empathy is key to deliver value
2. Convert a requirements into Epics
3. Epics into Features into Stories



Contractual agreements

- Use Agile
- Comply Regulations
- Provide value
- User satisfaction



DOE initiative (*NOT REAL*)

DoE is to understand a student's education path, interest, and possibilities without standardized assessments; and to leverage evidence based statistics and data to make better decisions about future education system evolution.



DoE initiative (*NOT REAL*)



DoE requires a platform where students and educators can exchange information on assignments, tests, and projects; to communicate around those exchanges; and for educators and policy makers to have access to data to fully understand the struggles and comprehension of taught topics to a student so that they can make better education decisions.

Minimum Valuable Product

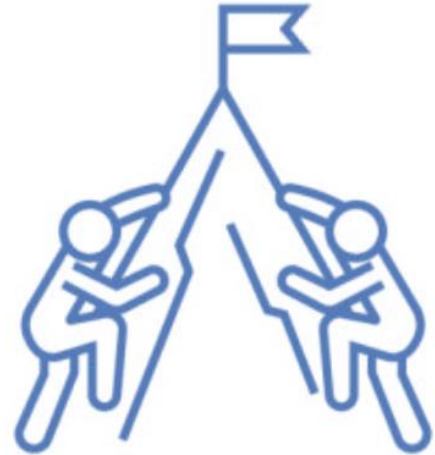
1. Create prototype/MVP for K-12 student and teacher platform to facilitate and communicate on the exchange of:
 - a. **Assignments**
 - b. **Grades**
 - c. **Guidance on taught topics**



To link students to teachers in order to facilitate communication on assignments, grades and guidance on thought topics.

Future Possibilities

1. Scale MVP across all K-12 school districts with strong data analytics capabilities to the districts
2. Add Student Platform to facilitate learning at peer level
3. Scale beyond K-12
4. Add Career Readiness Predictive Analysis capability
5. Provide data analytics beyond standardized testing



Outcomes of MVP

Create prototype/MVP for K-12 student and teacher platform to facilitate and communicate



Outcomes:

- Accessibility to K-12 students and teachers based on their current credentials in their district
- This platform becomes the primary place to exchange information, communicate between students and teachers.
- MVP can be tested in 5 districts
- Data must be secure and accurate

Requirements document



Functional
Requirements



Architecture
Design



Business
Requirements



Non-Functional
Requirements



User Flows



wireframes



Data
Model



System
dependencies



Some of the functional requirements

- Teachers must be able to log assignments to individual students or groups of students
- Students must be able to view their assignments that are upcoming and due
- Teachers must be able to view students' assignments that have been completed
- Students must be able to ask questions and view responses from teachers
- Teacher assistants must be able to respond to questions asked by students
- Teachers must be able to respond to questions asked by students
- Teachers must be able to send out reminders to students on upcoming due assignments
- Teachers must be able to grade assignments
- Teachers must be able to enter grades for tests, quizzes, assignments, or projects without student intervention.
- Students must be able to know how well they are doing on their classes

Requirements



What to do?



Scrum Team B



Scrum Team A



Scrum Team C

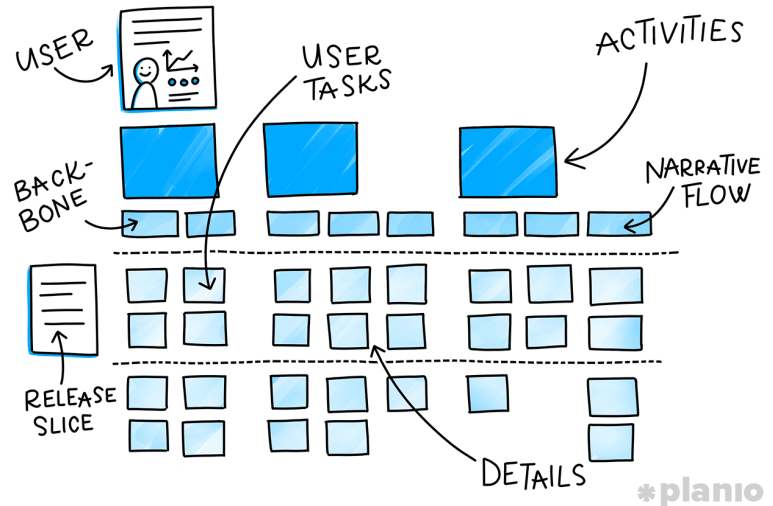


Epics!



Break Requirements into Components

- Breaking up Requirements into components will allow you to treat the large project into mini projects
- TREAT components like EPICS
- Story Mapping techniques
 1. Tie all the requirements to identify a component
 2. Ask team to add additional requirements
 3. Affinity map all stickies



Components

Epic!!

Product owner A

Product owner B

Break requirements
into components and
assign a Product
Owner to each

Product owner C

Product owner D

Scrum Team B

Scrum Team C

Scrum Team D

Scrum Team A



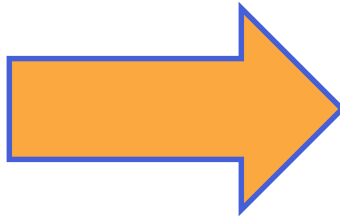
Sample Epics (for the initiative)

- Create Assignments and communicate to students on assignments
- Log grades for assignments, tests, projects
- Validate students and teachers
- Ask for help on assignments
- View upcoming assignments, tests, projects and grades for each

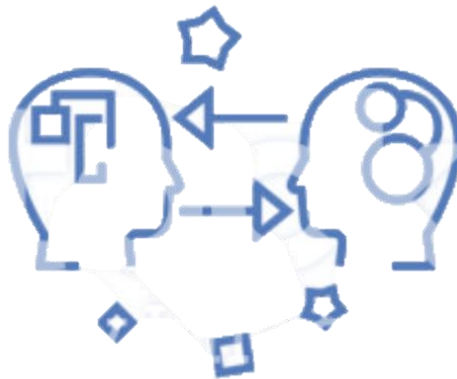


Some key differences

- Don't create project plan based on work
- Don't just develop work
- Don't Assume
- Don't Chum



- Create project plan based on value
- Develop Solutions
- Seek Feedback





Product owner A



Scrum Team A



Product owner B



Scrum Team B



For each component,
each team with their
respective product
owner will...



Product owner C



Scrum Team C



Product owner D



Scrum Team D

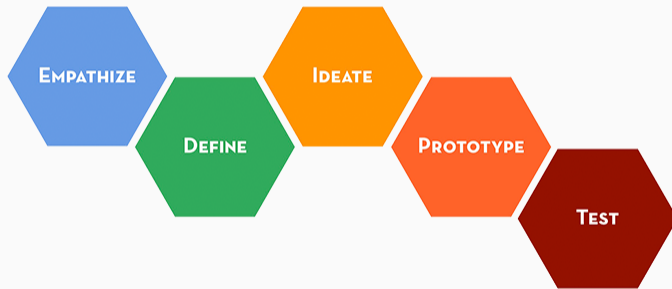


"DEEPER"
USING DESIGN
THINKING



Design Thinking

Empathize



Observe

Reflect

Make

Experiment

Why Empathy is critical?

- Reminds you why you're building something
- Allows for sound and evidence-based decision
- Truly understand who you're trying to help



Get out of old mentality:

- ~~“Build it and they will come”~~

Some of our stories...

- “Empathy is about finding echoes of another person in yourself.” - *Mohsin Hamid*
- Empathy Is...
 - Seeing with the eyes of another
 - Listening with the ears of another
 - And feeling with the heart of another



How to start?

Component:

Create Assignments and communicate to students on assignments

1. Define User Groups
2. Create User Persona
3. Identify Features
4. Write Features
5. Breakdown Work



1. Define user groups

- Find the “WHO” in requirements

- Interview
- Observe
- Talk



Possible groups

K-12 Students	Principals	Grad Student
Teachers	Professors	Custodian
Counselors	Teacher Assistant	Tutors
College Students	Custodian	Parents

Component:

Create Assignments and communicate to students on assignments



Select involved groups

K-12 Students	Principals	Grad Student
Teachers	Professors	Custodian
Counselors	Teacher Assistant	Tutors
College Students	Custodian	Parents

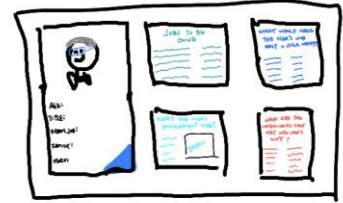
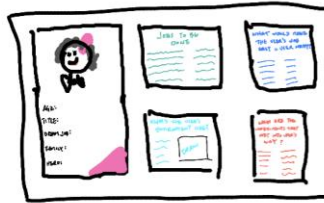
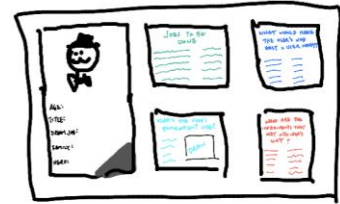
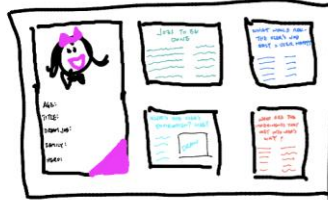
Component:

Create Assignments and communicate to students on assignments



2. Creating user personas

- Hypothesize User Persona
- Validate Hypothesis – “look for supporting evidence”



Teacher user persona



Name: Janet
Age: 45

Job: Art Teacher for high school

Passion: Making things beautiful

Dream: To open her own art studio targeted to helping kids find their love for art

JOBS to be DONE

- Hold classes
- Prepare for classes
- Assign relevant projects
- Pick up kids at daycare
- Dinner preparation

User's environment

- has her own classroom but tools are limited to what county provides
- buys a lot of her own add ons to make projects more special for the kids
- friendly atmosphere
- about 25 kids per class
- teaches about 4 classes a day

What would make the user's life easy/happy

- can have time to create individualized projects for each of her student
- can have a place to help her organize what she's assigned out, her students' interest, and their grades
- to share thoughts and ideas for students' projects or just "perhaps"

Impediments in user's way

- Hard to generate so many distinct projects...need ideas
- doing assignments in bulk to ensure all her students know what's due and she can check-in on progress
- one place to do everything for her students

Student user persona



Name: Jeremy
Age: 15

Job: High School student

Passion: Taking things apart
and tinkering

Dream Job:
Get into MIT and obtain an
mechanical engineering
degree so that he can work
for medical organizations
and create thing to help
handicap people

JOBS to be DONE

- Attend classes
- Participate in clubs around school
- Works part-time to make money and start saving for college
- Build resume for college prep
- Get at least a 3.8 GPA

What would make the user's life easy/happy

- have one place to help organize all assignments for all the classes
- Able to seek help from teacher
- Able to get notification when assignments are assigned and due
- Able to check on status of assignment, grades, responses when I'm at work

User's environment

- has two younger siblings - 10 and 7
- They require his help on homework and getting organized
- lives with single Mom
- helps out with chores around the house

Impediments in user's way

- Has dropped assignments because there was no reminders
- Has fallen asleep in some classes because up too late working, or helping at home
- Wants to be well-rounded and refuses to drop any activities after school

3. Identify features



Log assignments for students



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Features identified

Log assignments
for students

Send email to
students when
assignments are
uploaded

Bulk assign tasks
to students

Track status of
assignments

Upload
attachments to
assignments

Create
assignment

Component:
Create Assignments and
communicate to students on
assignments



K-12 Student



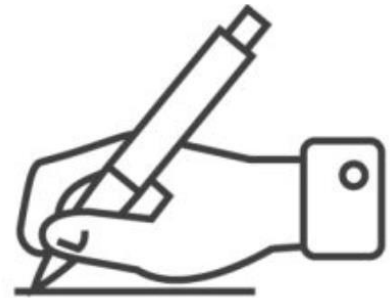
Teacher



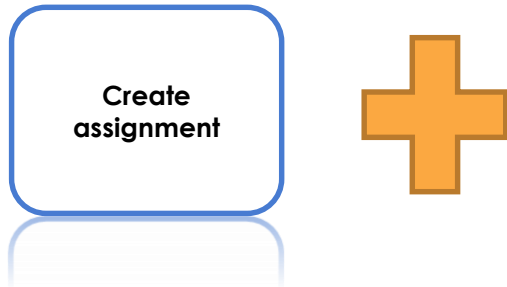
4. Writing Features

Write features identified in the user story format

As a **< user >**, I
want to **< feature >**
so that I
< benefit / value >



Linking our personas with features identified



As **Janet**, I want to **create assignments for each art student based on a theme of their liking** so that I can **be creative in what each of my student is able to get out of my class.**

User persona



Janet
Teacher

What would make the user's life easy/happy

- **can have time to create individualized projects for each of her student**
- can have a place to help her organize what she's assigned out, her students' interest, and their grades
- to share thoughts and ideas for students' projects or just "perhaps"



Samples of features

As **Janet**, I want to **create assignments for each art student based on a theme of their liking** so that I can **be creative in what each of my student is able to get out of my class.**

As **Janet**, I want to **upload sample images and attach them to assignments** so that my **students can understand what my expectations are.**

Component:
Create Assignments and communicate to students on assignments

As **Janet**, I want to **create bulk assignments, name the assignments, and assign it to all my students** so that I can **be save time and come up with new assignments for my students.**

As **Janet**, I want to send **an email to all my students telling them assignments have been uploaded (regardless same or different assignments per student)** so that **they are aware something is ready for them to work on.**

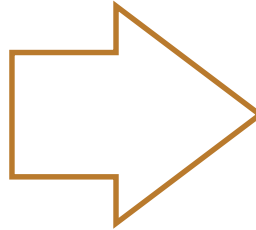


Janet
Teacher



5. Break down work

As **Janet**, I want to **create assignments for each art student based on a theme of their liking** so that I can be creative in what each of my student is able to get out of my class.



Stories



Scrum Team



Wireframes

Feature



User flows



Requirements



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QUESTIONS?

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