

MODEL-BASED PRODUCT DISCOVERY

ESTABLISHING SHARED UNDERSTANDING IN SERVICE OF INNOVATIVE PRODUCT DEVELOPMENT

»» HIGHLIGHTS

- ▶ A document is NOT shared understanding
- ▶ Using models vs. documents is MUCH faster
- ▶ What types of models should be used

READ THIS IF YOU WANT TO LEARN HOW SOME ORGANIZATIONS REDUCE IDEA TO DELIVERY CYCLE TIME BY 83%

Throughout many fields of work, we find numerous examples of visual models and representations that facilitate early discovery of what will be built. These tools aid in understanding concepts and fostering alignment among stakeholders and team members.

However, within the digital product space, we often find ourselves relying heavily on documentation to outline requirements. This involves breaking down larger tasks into smaller ones to fit into a sprint, a process commonly known as refinement. But using a written approach for this essential discovery process can be extraordinarily expensive. It can also focus on breaking down known requirements and not used models to discover unknowns.

Moving to using models (drawing, diagrams, etc.) that discover new and break down existing ideas makes this process much faster.

If you are in product management and wish that discovery would take much less time - this paper is for you.

→ **USE THIS GUIDE TO MAKE A MEANINGFUL IMPACT ON THE PEOPLE
AND PROCESSES IN YOUR ORGANIZATION**

Using model-based discovery
moved 30 teams from:

64 weeks from Idea to Delivery



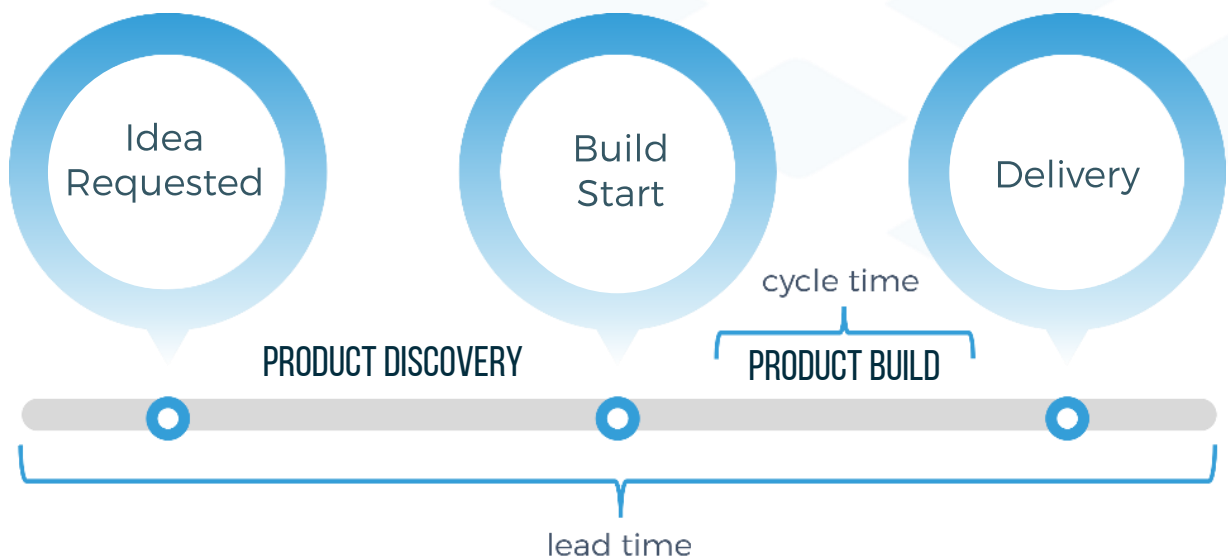
11 weeks from Idea to Delivery

The use of the word “model” will be used repeatedly in this paper and different types of models will be shown – a definition to anchor yourself to:

Model (mod-el)

1. miniature representation of something
2. description or analogy used to help visualize something that cannot be directly observed
3. description or analogy used to help visualize something

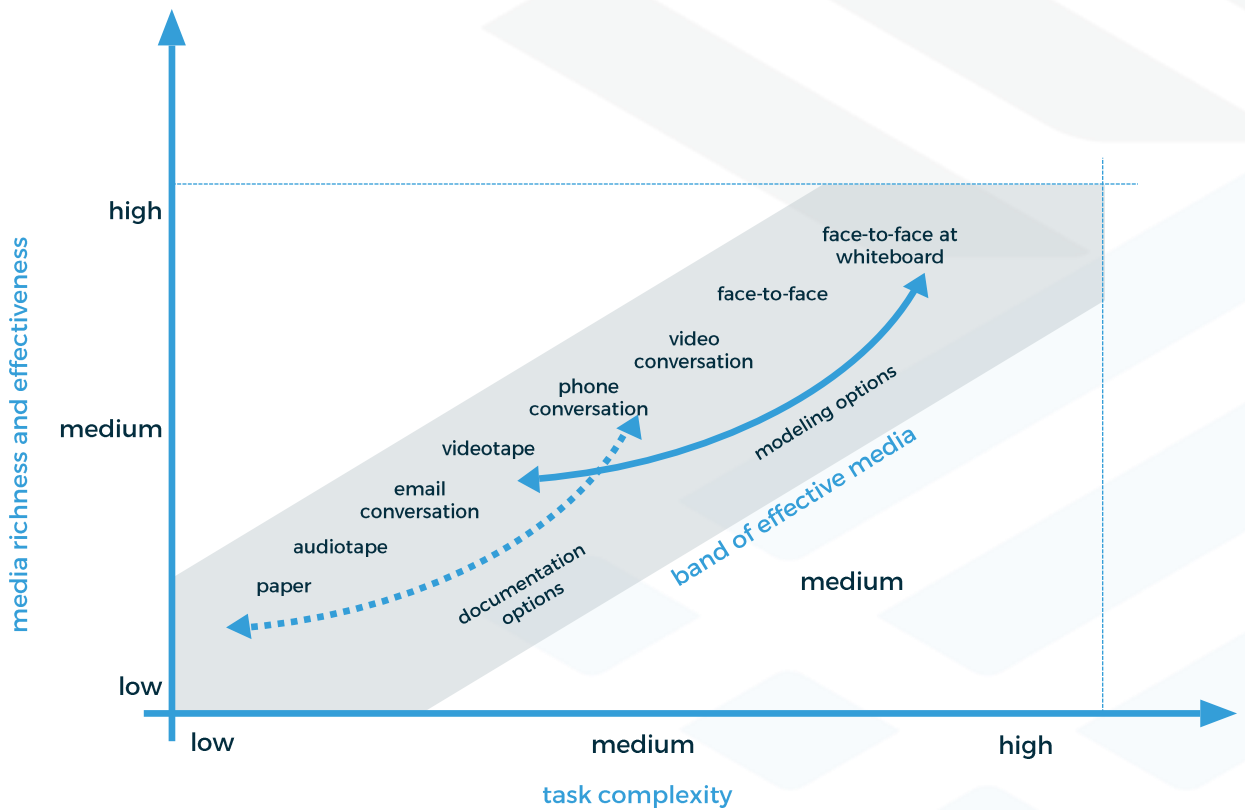
Organizations that adopt models to start breaking down complex ideas see **faster cycle times** and **a higher amount of throughput**. These measures show growing or slowing **trust of your product teams**.



BENEFITS OF USING MODELS

SHARED UNDERSTANDING

As teams take on big unknown opportunities, it becomes work not only to break things down, but also to maintain alignment in what we understand together. “**Shared documents aren’t shared understanding**,” Jeff Patton says in his *User Story Mapping* book. One could even refer to Fred R. Barnard’s phrase, “**a picture is worth a thousand words**.” As teams wrestle to dissect, learn more, and identify what they do not know, no number of words can capture something that can be used to *throw it over the wall*.

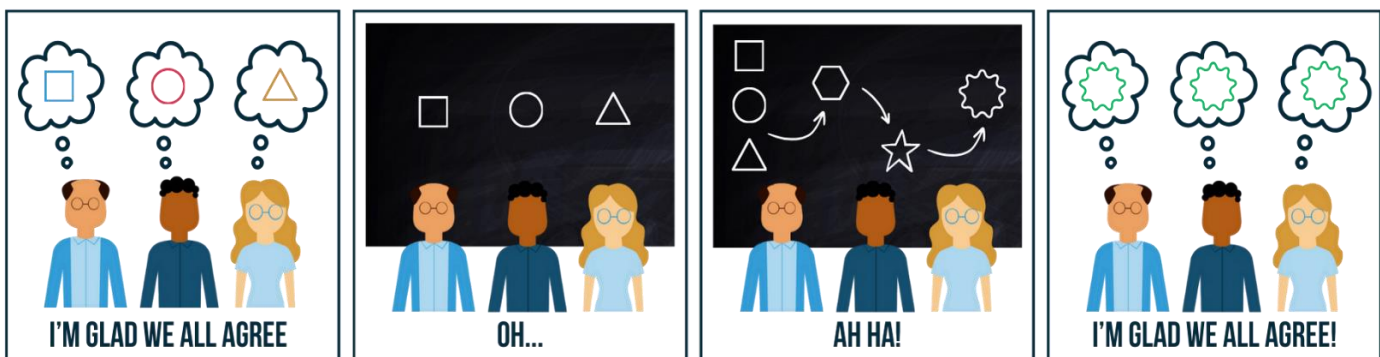


Adapted from Richwald 1998 and Cockburn/Ambler 2002

Understanding the way humans consume, retain, and share information is needed. The way we communicate is key to that input. A couple of studies by Richard E. Mayer and then Alistair Cockburn really sum up the way we should use communication channels regarding the effectiveness and understanding.

For those working with a team on unfamiliar tasks requiring breakdown, it's best to do so ideally at a whiteboard. Here, drawings of processes, user experiences, data modeling, and other techniques can facilitate conversation and exploration. [Look at the many industries that use models](#): architecture, electrical, city planning, supply chain, surgery prep, manufacturing, and sports of all sorts rely on drawings, not documents.

If you've ever been in some sort of refinement stage, especially early in discovery, think about the level of shared understanding everyone had in that room (virtual or not). What did you all leave that room thinking? Was it similar enough?



via Jeff Patton & Luke Barrett

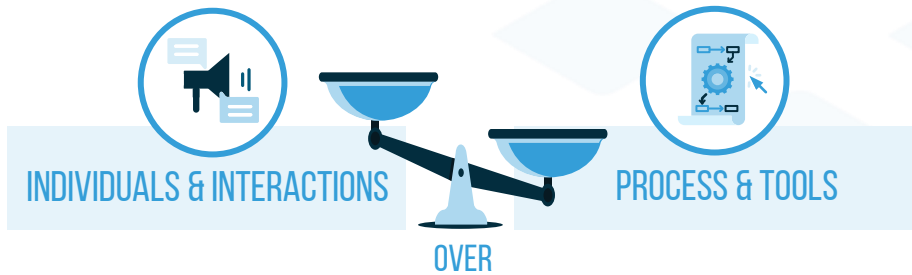
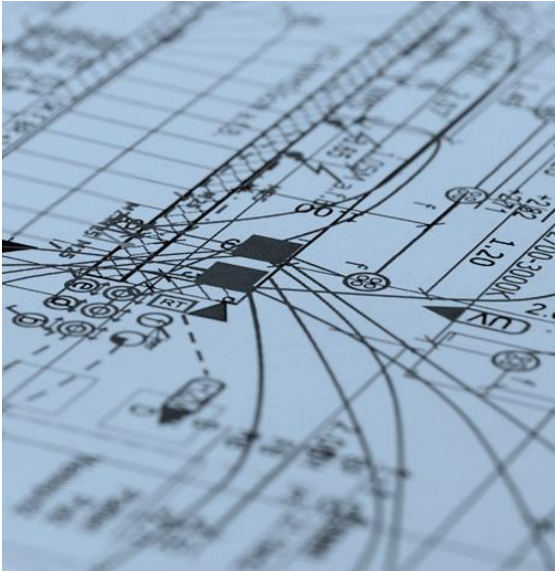
A shared understanding is crucial to teams progressing together. One person writing a document that is intended for the team is a noble pursuit. However, we all know in our hearts that we aren't going to read that document and we're going to wait for the meeting that gives us the TL;DR excuse (too long didn't read). It's become just a known thing that we don't read more than half a page and exclaim it by quickly abbreviating it. Using drawings or models helps us have a conversation. There is worth in those Agile values. **Individuals and**

Interactions over Process and Tools.

That means we should value those things that promote the people in and around the team to have interactions.

Documents just aren't working for us, but we still produce them in hopes people will read. Rather than try change this behavior, give a go at a picture, drawing, or a model describing what is to happen or be built, a complex decision tree for a business rule, etc. Have the conversation about the drawing. You will find that the shared understanding after that is far superior. The picture above from Jeff Patton's work has become so used in the Agile space, but many organizations still are writing novels that aren't creating that shared understanding.

Architecture, electrical, city planning, supply chain, surgery prep, manufacturing, and sports of all sorts rely on drawings, not documents.



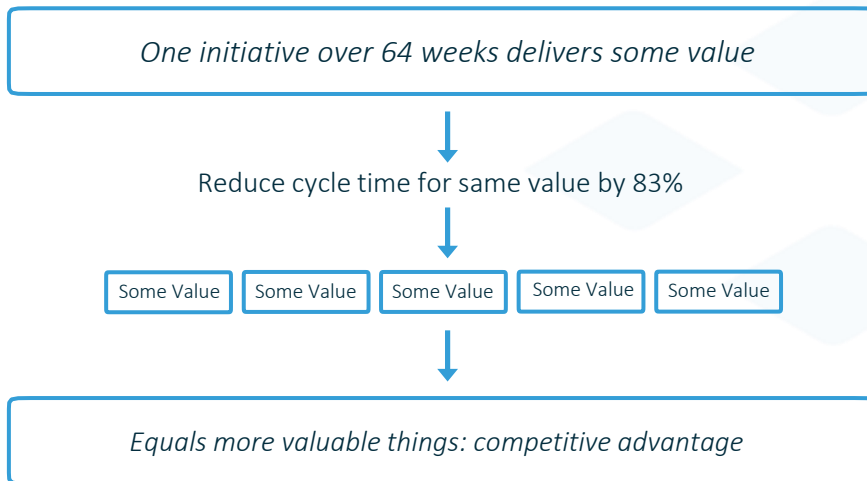
➤➤➤ ECONOMICS AND COMPREHENSION OF MODELS

Models continue to boost the economics of product discovery by helping many stakeholders, subject matter experts, and product team members work together in a shared medium appropriate for complex product development work. Comprehension is boosted as well, which speeds alignment with groups of people quickly.

<p>COMMUNICATION</p>	<p>ITERATION & ADAPTION</p>	<p>COLLABORATION</p>	<p>LEARNING CURVE</p>	<p>OVERVIEW VS. DETAIL</p>	<p>INCREMENTAL DETAIL</p>	<p>DETAIL VS. OVERVIEW</p>
<p>Models have the advantage over written documents for having a conversation that results in shared understanding</p>	<p>Models lend themselves to getting high-level understanding, then breaking it apart with another model that explores more detail.</p>	<p>It's easy for teams to quickly understand and work more in detail with a different type of model so they can bring back, inspect and adapt.</p>	<p>Models have learning curves. However, using a model gives a team speed that eclipses using written documents to gain a shared understanding.</p>	<p>If an overview is needed for a large feature, models are often the best way to gain that understanding.</p>	<p>Process elaboration is natural as additional details are discovered. Models are a great way to drill down to more detail.</p>	<p>Documenting detailed steps in processes helps teams focus on the complexity of the build.</p>

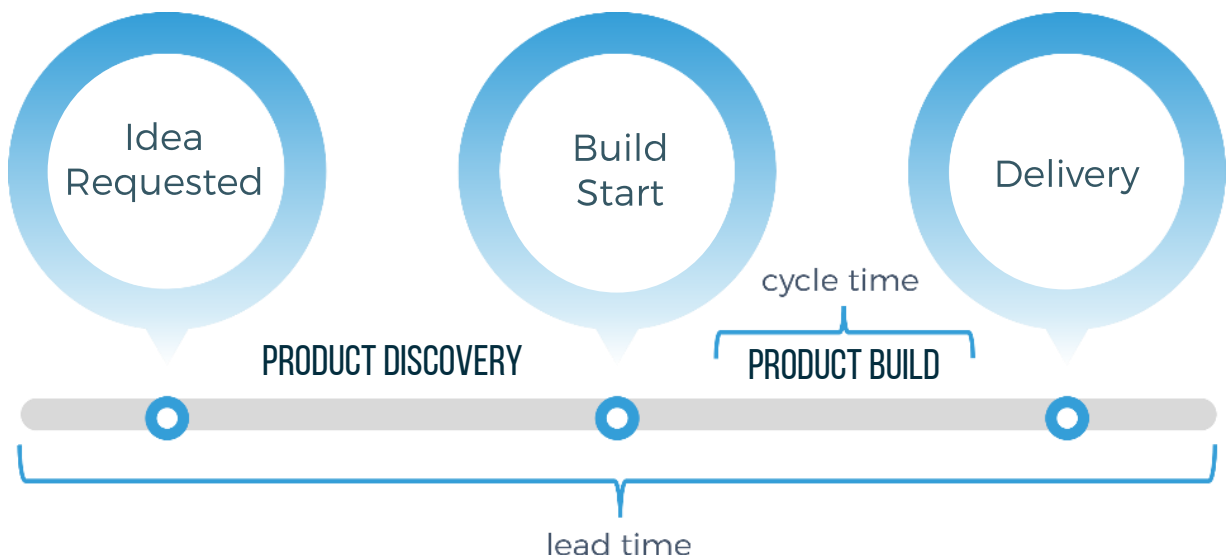
Looking at the speed and understanding a team can gain doing the formative work at defining and discovering the right product is a **competitive advantage!** The reality is that new ideas come into the intake process and are often very vague and nebulous. Sure, there may be a paragraph describing something cool and market changing. But what, exactly, should we be building? That's not in the request. It often talks about outcomes – hopefully.

With outcomes we may use OKRs. We take an objective and define some key results. Each of those key results may become a group or a team's objectives and they form up their key results. This goes in tandem with discovering what will be built. This is progressive elaboration. To make this process faster – turning to models, drawings, etc. can help get alignment faster, a good understanding of that level of the problem/opportunity, and a path forward to explore more.



Using these models are indeed faster. While working with one department in a Fortune 10, we moved to model-based product discovery. We took one group in that division and did a pilot to prove out just how much faster it may be. The pilot ran three months and involved about 30 teams. Before, this group was seeing 64 weeks idea to delivery. They were delivering digital experiences to internal and external users.

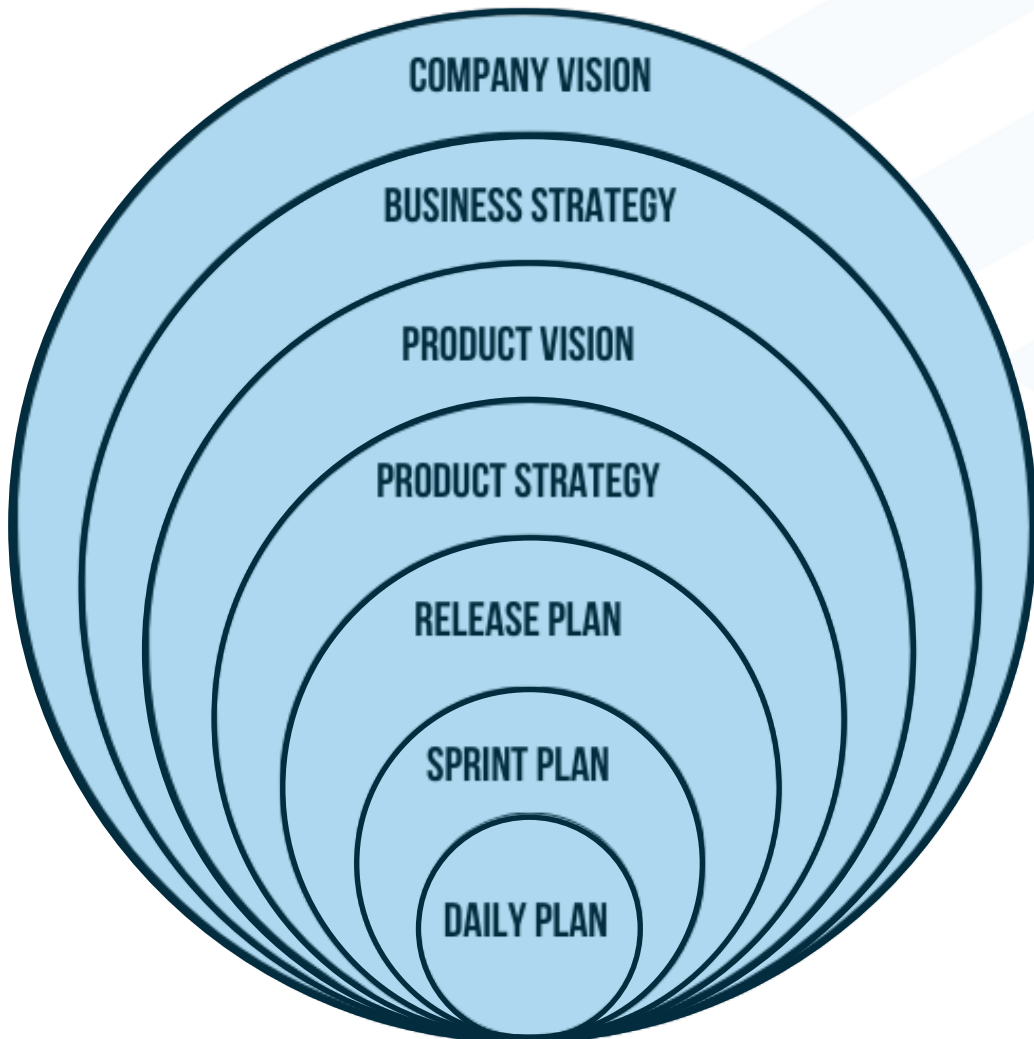
At the end of the pilot using model-based discovery, they got to 11 weeks idea to delivery with those 30 teams. As the pilot finished and other groups started using the same model-based discovery compared to their past writing and writing and getting alignment on that writing; those groups also saw dramatic improvement in cycle time and throughput.



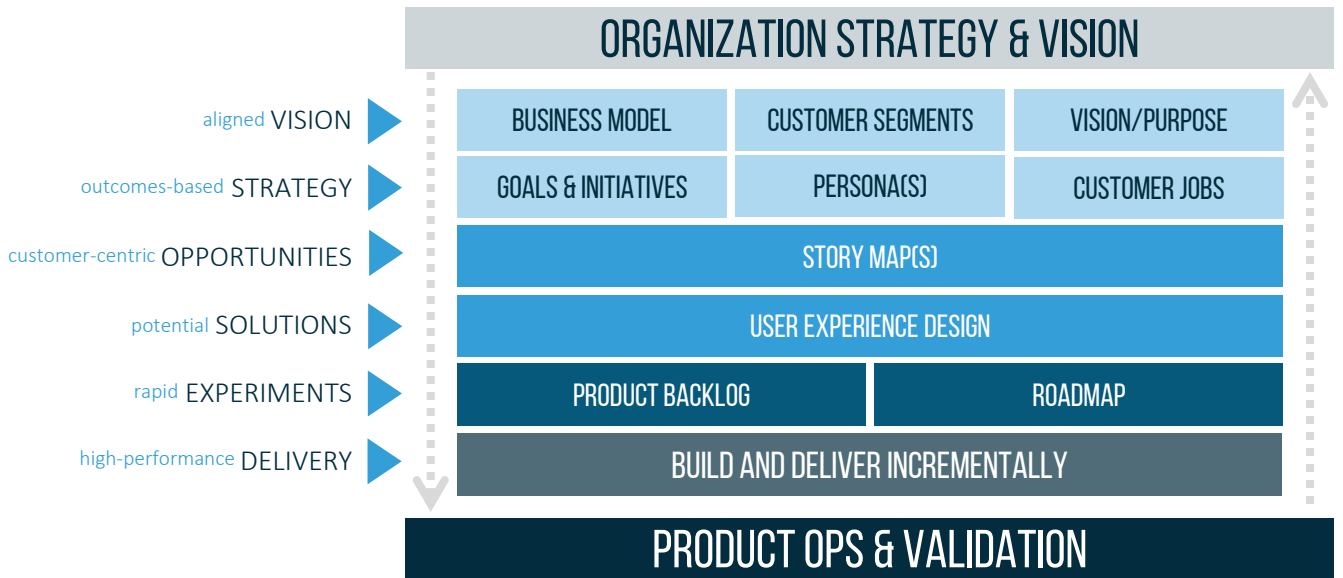
START USING MODELS TO DISCOVER

WHAT IS A MODEL?

You need to think of a model as a collection of models. Each model breaks down the prior model into more detail. There is no perfect answer as your organization and even your own product may add a few things, take away a few things. What is presented here is a common set that you will find yourself adding a few things that will be useful in your context.

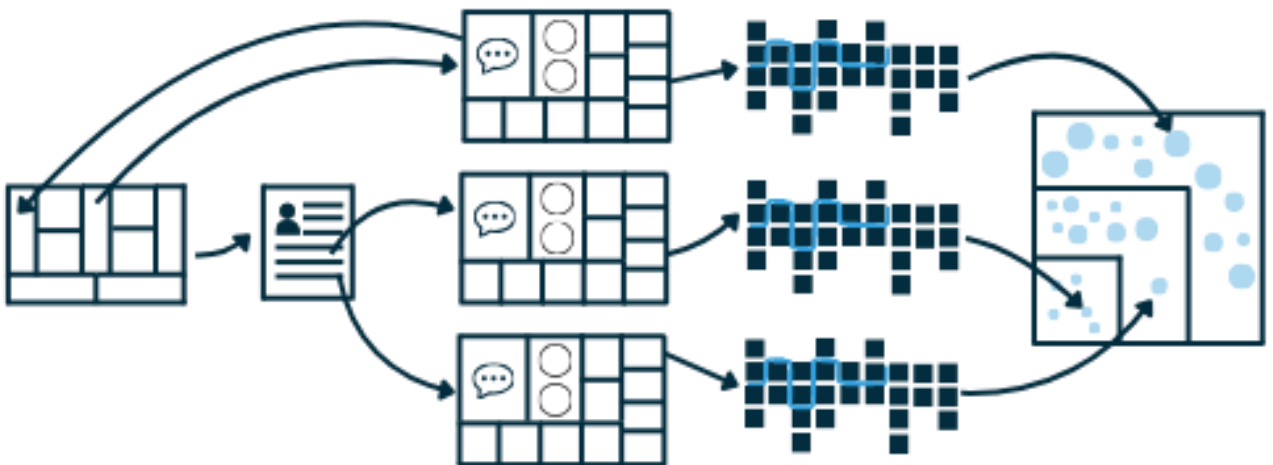


We start with a drawing adapted from Don McGreal and Ralph Jocham's book *The Professional Product Owner*. This book and a few other references in this paper at the end will be a great place to try out and some tools to your toolkit for creating models. The drawing really shows us what problem we are trying to solve. What is the company vision? What is the product vision? How does that product vision help and enable the company vision? As you can see, the nested circles support the higher-level items just as the higher-level items can be broken down by the smaller ones. Keep in mind – you don't need to solve all for each layer. Solve enough of the most valuable and go after detail on that. You can always come back and add more value later. I suggest a good read of this book to learn about not only useful models one can use but this idea shown in the diagram of Vision, Values, Validation.



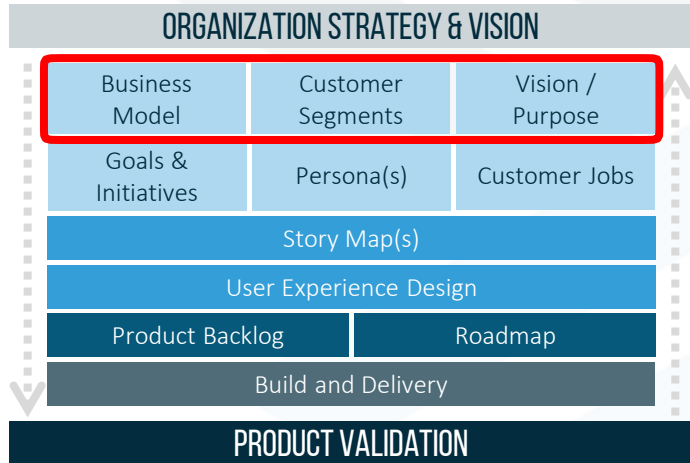
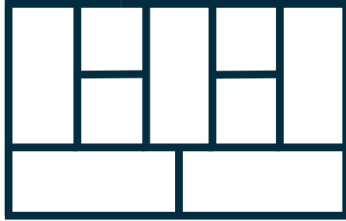
Let's look at ways we can use specific models in this journey. The horizontal bars represent the layers of additional refinement (vision to strategy to opportunities to user experience) that can be completed driving toward creating a backlog of user stories for product teams. Each box in this diagram could have one or more models. Given a product context, some models may be switched for another better suited. Where you put these models and how you link them together within your organization is very important. Giving consistency and transparency in location and the ability to follow how which model breaks down into another drives all the benefits outlined above. Tools like Aha! and Jira Align can certainly be helpful. But remember this little piece of wise advice: **"Individuals and Interactions over Process and Tools."**

You can look at these different models in concert breaking down the solution to more manageable pieces. This is basically backlog refinement, but starting at the vision. It may look something like this:



Let's explore some of these models, starting with the larger idea of Vision. The next sections will talk about some models that can be used, situations where a specific model will be most useful, some pros and cons, and other suggestions.

ALIGNED VISION



We start with a why. As an idea comes up, it may be a large new idea, and the business model itself needs to be understood – the why. Sometimes the idea is to improve, add to, remove, remix, or otherwise change something about an existing product. Sometimes the idea is very targeted to a specific persona and a job to be done – if so, go find that user job model you created a bit ago and see how this new idea impacts that model and its surroundings.

+ Useful Tools

- Business Model Canvas
- Opportunity Canvas
- Platform Canvas

+ Benefits

- For something new and big
- For something new to be added to an existing product
- For a reusable white label customizable product

OUTCOME-BASED STRATEGY



The persona represents all or part of a customer segment from your business model. Adding a new persona to an existing product makes you check your work back to the business model and forward to ensure that persona can be incorporated, and you can understand the impacts to current product capabilities serving

other personas. Personas help you get to know who and why this user may have a different take or need on your product. **Only knowing a user's age and other demographic information isn't enough.** Doing some empathy mapping helps the people building the product get into the persona's pains and gains. It helps us understand what jobs they would want the product to do for them. To do that best, we must have empathy with this persona. Designing and building for the personas ensure we have their best interest versus just speed to market.

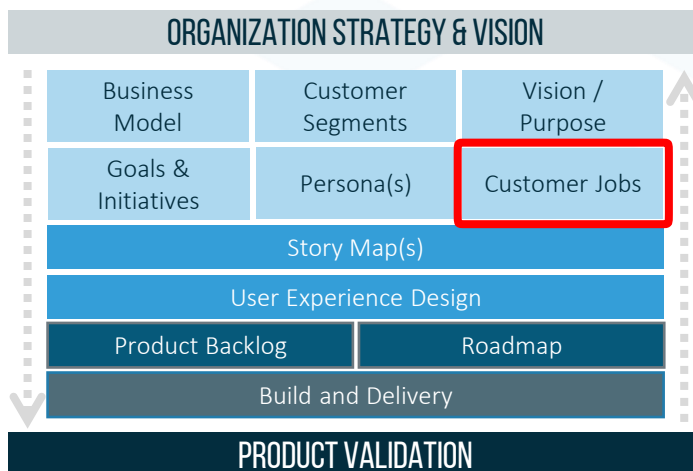
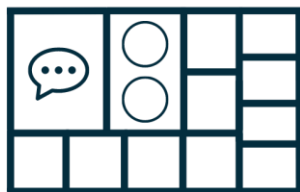
+ Useful Tools

- Persona Template
- Empathy Map Surveys
- Interviews
- Focus Groups
- Customer Journey Maps

+ Benefits

- Demographics, psychographics, etc.
- Understand motivations and behavior
- Broad reach
- Collection of Insights
- Helps understand empathy along the journey

CUSTOMER-CENTRIC OPPORTUNITIES



The user jobs start to get us closer to what functionality our product should bring to the different users we will build for. Just having a name for the job, such as “find user manual for my new product I just purchased,” or “reserve the four seats I selected to see the show,” are examples. Some jobs may seem clear at first. Doing a quick look into the empathy of doing that job may be important. When you have both the empathy with the persona as well as the job they are needing to do, you will really meet that user where they are at. **Not all jobs are equal. Not all jobs are fun to do.** There may be fear in doing a job. How do we take the whole of that job and not just the transactional side of it and help our human users complete that job to the best of their ability and be good with the way it was done for them – that’s the design the users expect.

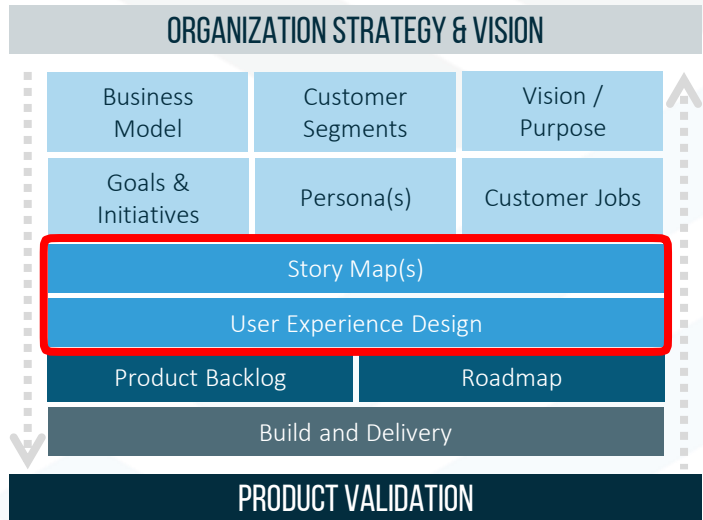
+ Useful Tools

- Jobs to be done
- 1-2-3-All liberating structure
- 25/10 Liberating structure
- JTBD Map

+ Benefits

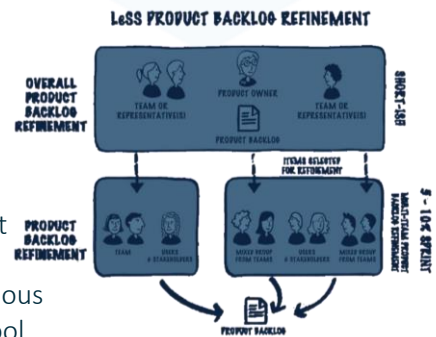
- From the customer/user perspective
- Quick crowdsource to prioritize jobs
- Great way to have many people generate ideas
- Understand empathy for the job itself

POTENTIAL SOLUTIONS



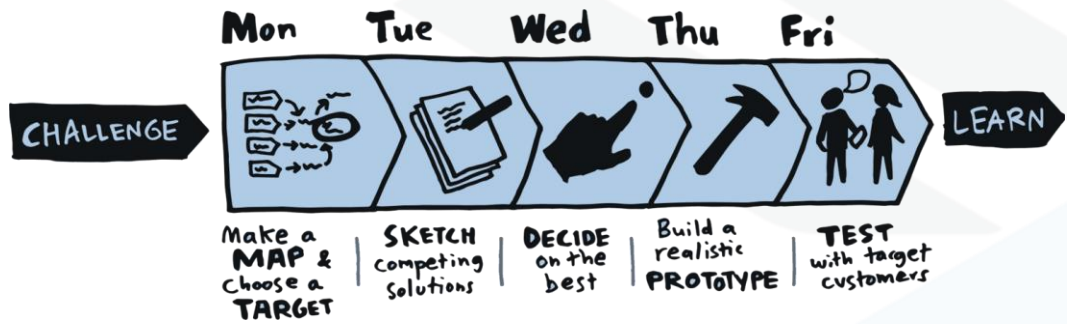
At some point it makes sense to turn this model over to a user story writing workshop. Make good use of many formats, there are more than the one most people quote (As a _____ I need to _____ so that _____). Maybe there are multiple teams that will work together to bring this whole story together. Maybe some of those teams have special knowledge or skills so that they want to author some of the stories that they know best and other teams take others they know best. Bringing in a concept from LeSS (Large Scale Scrum) – multi-team backlog refinement – will help with cross team learning and move skills and knowledge to broader portions of the set of product teams unleashing more options for vacation, learning, experience, and having fun.

At this point one must wonder when user stories should be written. Not yet. Let’s model the story of various users doing the same job, but maybe in different ways (or they may have different needs from the same job), using a story map – which Jeff Patton made a lot more famous as he wrote a book on the topic. Story mapping truly is a wonderful tool that really pushes shared understanding. Sure, the above models certainly do that too. But at this point, we’re getting to the detail, and we can see this job coming together. We can maybe see in our own mind a user interface coming to life. Let’s not assume that any one person has the right answer. Getting folks together to collaborate on what it takes to get the job done ensures we are getting closer to what this user really needs and will be served to them in a consumable way that they possibly even enjoy doing.



Story mapping allows the walking of the story with different personas. Doing this will refine the story map more – continuing to break down the jobs to smaller and smaller parts.

From story maps, you may want to explore the “potential” part of potential solutions a bit more. Tools like design sprints from Jake Knapp’s book *Sprint* have been employed many places with great results. The models above give a shortcut to structure and finding the areas you want to validate with real users. Better use – put real users in your weeklong design sprint. Why not have a customer help you discover your product? What benefits could come of it?



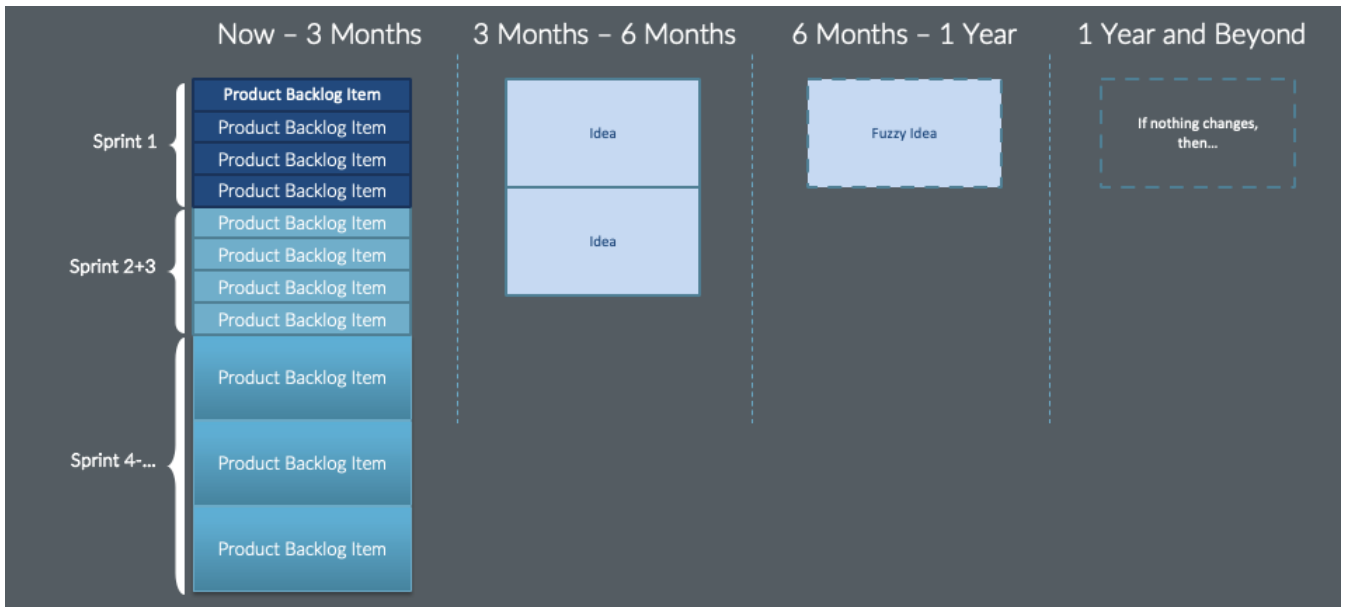
+ Useful Tools

- Jeff Patton’s “User Story Mapping”
- Mural, Miro, etc.
- Collaboration

+ Benefits

- A guide to using this technique that moves simple models to a living model of customer needs
- Ways to not only do this virtually but have better clarity of results (handwriting leaves us guessing)
- Work together, don’t have ONE person writing and placing cards

BUILDING A ROADMAP

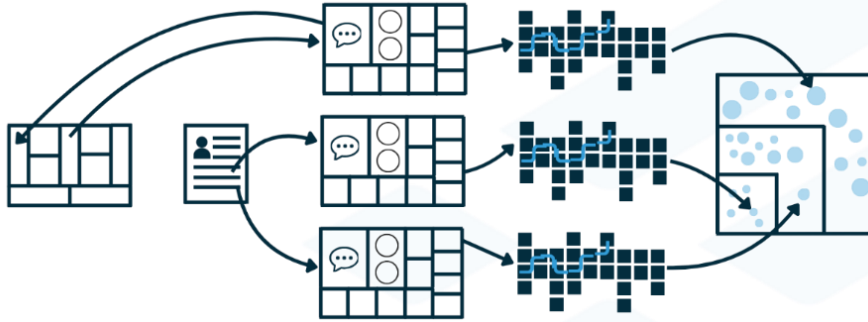


There are many considerations in using a roadmap. Is the roadmap for guidance given the information we know at this point? Or is it to guarantee a delivery window? If it’s the first, then that can progress in the type of story map best to use.

ADVICE

PUTTING IT ALL TOGETHER

You need to think of a model as a collection of models. Each model breaks down the prior model into more detail. There is no perfect answer as your organization and even your own product may add a few things, take away a few things. What is presented here is a common set that you will find yourself adding a few things that will be useful in your context.



As you start putting all this together with the tools, models, and facilitation techniques that works for your organization or your product team – it’s important to communicate. Ensure there are some opportunities to pair up with peers to learn to work with these models. If a Community of Practice can be co-opted or created that would help the ongoing development of skills and understanding.

Keep in mind how information from parts of one model spawn a new model to get into more detail. Keep in mind that the flow isn’t just one way. As you are working say a JTBD Model you may come up with a new Value Proposition or Key Partner in your Business Model.

»»» LIVING WITH MODELS

Keep up your models. When we use documents in the form of requirements documents that spanned 300+ pages or specification documents which were 40 to 60 pages each – often having well more than 100 specification documents of different types – we often did not treat these artifacts as assets that needed to be maintained.

Models are no different. If we do not keep our models up to date with the changes we make in the life of a product, all this good work will take a lot of re-orientation.

However, if we fail in the maintenance of our model assets, we do have the more consumable and easier to get back into conversations. We can pick up a dated model and ask how it has changed since then. We’d be able to find suspect areas to examine and meet with subject matter experts to re-learn things which once were so clear to us.

**IT'S FASTER.
IT DRIVES ALIGNMENT.
IT PRODUCES BETTER PRODUCTS.**

CONCLUSION

Many organizations have done at least one transformation of some sort. Usually targeting producing things faster.

Much of what we know/believe/and robotically respond in unison in building things is “*faster, better, cheaper*” – also known as efficiency. If I can put in less the margin is then more favorable. This is trying to eke out any performance or advantage in our current world. Those disruptors that you’re worried about – they don’t care much about efficiency. They care about effectiveness. Building the wrong thing really fast and cheap could mean you have a lot of useless not fit for market product.

A different mindset is needed. We’ve all heard the sayings around this:

“ GIVE A MAN A FISH AND YOU FEED HIM FOR A DAY.
TEACH HIM HOW TO FISH AND YOU FEED HIM FOR A LIFETIME. ”
Chinese philosopher Lao Tzu, found of Taoism

Which will you choose? Efficiency or effectiveness? Most people use the efficiency word even when they mean to use effective. Our history of an industrial era set in a complicated problem space with an institutional system of education is just behind us. Unlearning this and doing things differently not only takes a different mindset but a whole different view of the world around us. Go back to when you were very young. Somewhere somehow you were told that wasn’t right and something else was. These statements often came when you were breaking with tradition. You learned to stop asking questions. Remember a time when you asked a lot of questions? Yes – that time – when the adult said, “because I said so.” Let’s not give up asking these questions of working and doing differently. It will take more than a culture change to move into the next era out of Industrial 1-5.

“ CHILDREN ARE THE RESEARCH AND DEVELOPMENT DIVISION OF THE HUMAN SPECIES. ”
Alison Gopnik

ABOUT THE AUTHOR



As an enterprise principal consultant at Turnberry Solutions, [Creg Schumann](#) works with clients creating rich environments where products are built with the humans in mind who love these products. He’s been part of transformations in small and large companies. Focus is on organizational operating models, talent, change, continuous improvement, management style, and funding models. In the end, it’s the humans making changes to work together. It’s a complex system where all areas need to flex and flux to become what they dream.

Special thanks to our peer reviewers:

- [Pete Anderson](#)
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- [Kevin Sakamoto](#)
- [Lindsay Bennett](#)
- [Ti Mougne](#)
- [Josh Roberts](#)
- [Ashley Belisle](#)
- [Jessica Lind](#)

Useful links:

- [Liberating Structures](#) – great for facilitation of model-based discovery
- [Strategyzer](#) – great books for business model and testing business ideas
- [The Professional Product Owner](#) – stocked with models to use in discovery
- [Product Transformation and Learning Board](#) – More models and tools, curated by Pete Anderson
- [Story Mapping](#) – the how to from Jeff Patton
- [Cutting an Agile Groove](#) – video series from David Hussman
- [The Tool List](#) – by Product Beats
- [Beware of Agile in Disguise](#) – Doing all the discovery upfront is agile. Choose what to model.

Highlighted Models:

- [Business Model Canvas](#) – from the source – Strategyzer. Consider Value Prop Canvas, too
- [Personal Empathy Maps](#) – Start on the left and go clockwise
- [Jobs to be Done Canvas](#) – Empathy for the Job that a Persona does
- [Story Mapping Guide](#) – A guide to the various elements and ways to map