



# Creating Value with Proto-Research Persona Development

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**Abstract.** To stay competitive in marketplace, companies have to design compelling products that are successfully adopted by their intended users. To achieve this goal, companies must establish and validate a shared understanding of their customer base. In this paper we propose a persona development process for creating value in an organization. This process, which can be conducted relatively quickly and cost-effectively, provides a roadmap for continual assessment of organizational understanding of customer base. It creates value for companies by allowing them (1) to build consensus internally around their customers' needs, goals, and preferences, and (2) to validate/test the accuracy of the assumptions they make about their customers. We tested this process in a fortune 500 company. Our results suggest that our process is both effective and efficient in establishing a shared understanding of the customer base and in testing the accuracy of assumptions made by organizations about their customers.

**Keywords:** User experience · Persona development · Design decisions · Business value of design

## 1 Introduction

Understanding customers and what their needs are is paramount to the success of any organization. These insights are the first step in enabling the framing and development of products and services that achieve product market fit. However, despite the foundational importance of this understanding and empathy towards market base, many organizations fail to develop these insights due to significant resource and/or logistical challenges. Keeping track of current and anticipated needs of every single current or future customer can be a challenging task. Depending on the size of the organization, the customer base can range from few hundreds to millions. One way to make this challenging task manageable is by organizing the customer base into specific user groups of a product or service and then representing the goals, needs, behavior and other characteristics of each customer group via a fictional but realistic persona [8]. The representation of customer needs, challenges, preferences, and other characteristics via personas can help senior leadership to build consensus about market needs and thus help them to work more effectively together to address opportunities for innovation and

other strategic goals. In addition to improving communication internally through consensus building, personas can also help improve external communication. For example, by providing a deep understanding of customer base, personas can guide sales representatives to better convey to customers how a product can meet their needs.

Personas can help make more effective decisions [1]. For example, human-computer interaction design decisions are often improved when personas are used. By using personas at various stages of development organizations can make sure that their design decisions incorporate the needs of their customers in each design phase [2, 3]. Similarly, organizations can use personas to improve their marketing decisions. For example, personas can help marketing teams to decide which group of customers benefit most from an advertisement and how and where advertisements should be delivered to create the most impact.

Persona development can roughly be divided into two major categories: proto-personas and research personas. As suggested by the name, research personas are developed by conducting user research, for example through observational studies and/or conducting one on one interviews. The patterns identified by observing users and/or during the interviews help capture different aspects of life and work of customers that build the foundation for developing personas [3]. Unlike research personas, proto-personas are developed through indirect interaction with users, that is they are assumption based. These personas are created by members of an organization, usually through a workshop where a group of selected employees are invited to estimate the goals, needs, behavior, and other life and work aspects of their customers [4]. These estimations are then used to provide insight for improving a specific product or service.

The research based approach for persona development provides a rich set of first-hand information from actual users, hence the data gathered through this process is closest to the “truth”. However, research persona development process typically takes a longer time to produce, and it tends to be incredibly resource intensive. The proto-persona development process on the other hand is far less resource intensive and can be completed relatively quickly [7]. Another advantage is that the proto-persona development process can serve as an excellent tool for consensus building among senior leadership, which is extremely important for developing successful products and services [4–6]. The drawback of proto-persona development is that it uses an assumption-based approach. If an organization does not have an accurate picture of its customer base, such an assumption-based approach can lead to myopia.

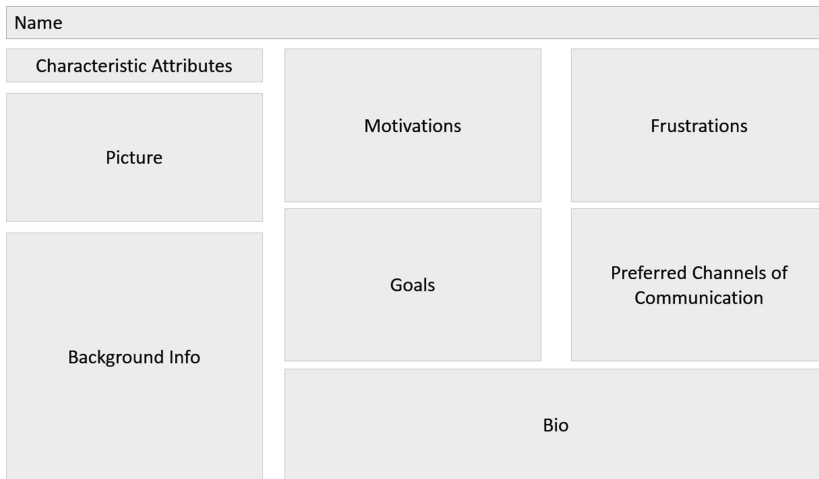
Given the pros and cons of the two approaches, the combination of the two persona development processes offers a comprehensive approach for developing successful products and services. In this paper we discuss a combined proto-research persona development process for design decisions that can be conducted in organizations relatively quickly in a cost-effective way. This process, which can afford senior leaders in an organization the opportunity to build consensus about and a deeper understanding of their customers, not only facilitates a roadmap for meeting the needs of current and future markets but also lends itself as a useful tool to assess the accuracy of organizational assumptions about customers. Our proposed approach involves consensus and empathy building thorough a relatively short workshop that aims at developing proto-personas of current customers. Then, our approach assesses the correctness of the assumptions that were made about customers via a relatively efficient user research. We

implemented our proposed persona development process in a fortune 500 company. Our results show that our approach can help organizations to build relatively quickly consensus around assumptions they make about user needs and to verify their assumptions effectively and efficiently.

## 2 Developing Personas for Design Decisions

By developing a common understanding of a certain group of users, personas help the design teams to focus their efforts around an agreed upon set of characteristics, desires, and behaviors that need to be considered during the design decision making process. In particular, personas help design teams to prioritize implementation, e.g., which features to implement next so that they can provide a more effective, useful, and enjoyable experience for users.

Personas are typically visualized through templates that have several sections summarizing background information (e.g., age, gender, occupation) as well as information about user needs, challenges, concerns, goals, and other characteristics that can impact design decisions. Depending on project needs, persona templates can have various formats and elements [9]. However, within the same project the template for different personas must have a consistent format (i.e., include the same sections) and their content must be clear and concise. Figure 1 displays an example of a basic structure for a persona template.



**Fig. 1.** Example of a basic structure for a persona template

In the following sections we provide a brief review of common practices for conducting proto and user persona development projects. We then discuss a combined approach that can be conducted in organizations. The efficiency of our proposed process is particularly important in organizational settings because to be effective our

proposed process needs to be repeated in regular basis. To stay competitive and maintain or grow their market share, companies need to repeatedly assess the accuracy of their assumptions against the evolving changes in their user base.

## 2.1 Proto-Persona Development

Compared to research personas, proto-personas can be developed relatively quickly and inexpensively. The efficiency and cost-effectiveness of proto persona development makes them particularly helpful to startup companies and/or those companies that wish to experiment with persona development. To build consensus among senior leadership, key representatives from multiple departments that are stake holders in the design of a specific product are typically invited to participate in the proto-persona development via a workshop [4–6]. Figure 2 displays the major steps in a proto-persona development process that are typically completed in such a workshop. Participants are first provided with a brief explanation of the purpose of the workshop which includes a brief discussion of the proto persona template that will be used in the workshop. Next, participants which are divided into cross-departmental groups, are engaged in a brain storming session that requires them to identify key characteristics of consumers that can affect design decisions for a specific product or service. In this step, each group is tasked with creating as many different personas as they can. Next the groups are asked to map each of their personas on a set of spectrums that are relevant and important to the project. Spectrums refer to non-binary characteristics that provide a meaningful differentiation between personas for a specific project. For example, a customer’s level of technology savviness may serve as a suitable spectrum for designing products and services that can target novice to experienced users. Once all the personas are mapped on multiple spectrums, distinct patterns are identified by participating groups. Based on these patterns, groups will decide if personas with similar characteristics should be merged. After finalizing the personas, groups will then decide which personas have the highest priority in design decisions that meet their business strategy.

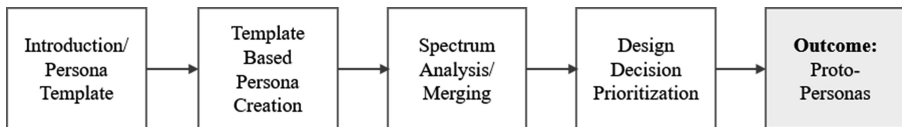


Fig. 2. Major steps in proto-persona development process

## 2.2 Research-Persona Development

Contrary to proto-persona development, research persona development is time and resource intensive. The first step in developing research personas is to decide which users should be recruited to participate in the study. For example, should participants be recruited from the existing customer base or should participants be recruited from the pool of prospective customers using products or services of competitors. Or, should participants be recruited based on their user roles (e.g., whether they use the product as

a technical user or as a business oriented user). The business strategy of the organization or project stake holders can help to decide the type and range of participants to recruit for the research persona study [10–12]. The next step is to design a detailed interview process to capture information for personas. This typically semi structured interview process aims at documenting the information that users provide about different aspects of experience with the product, their needs and goals, the challenges they face and their motivation to use the product or service to meet needs or accomplish goals. The interview data is then analyzed for patterns, for example, the types of behaviors that leads a user to adopt the product or patterns of needs and goals that motivate a user pay for the service. These patterns are then merged into a finalized set of personas, which in turn are prioritized based on strategic goals. Major steps in a typical research persona development process is shown in Fig. 3.

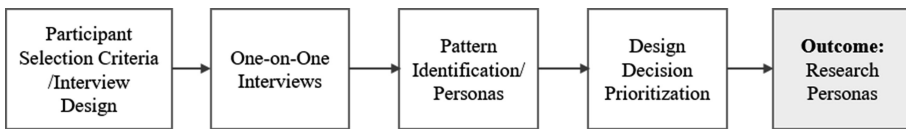


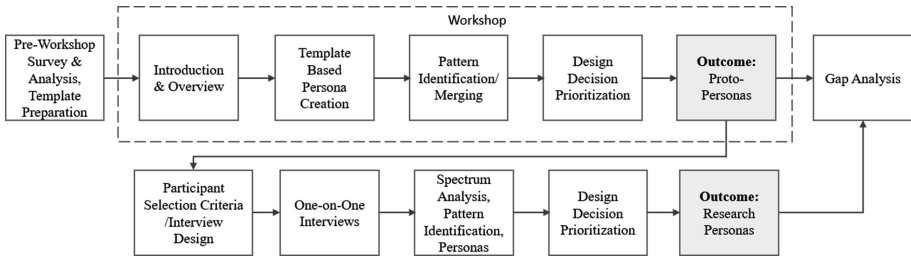
Fig. 3. Major steps in research-persona development process

### 3 Proposed Process

Persona development process, which is invaluable in consensus building and understanding user needs, is most effective in improving market needs if it is repeated periodically. This is because personas represent a snapshot of the market, they represent customers in a specific context at a specific period of time. To stay in touch with evolving customer needs organizations have to repeatedly engage in persona development process. For this reason, the persona development process must be efficient. Our proposed process provides an effective way to capture user needs and preferences efficiently, hence it can easily be used in a continual basis. Our two-step process employs proto-persona development as way to build consensus and to develop the first set of assumption-based personas through a workshop. The outcome of the first step is then used as a guide for recruiting participants for the second part of the process, i.e., the development of research personas. The outcome of both steps are compared to examine the level of disparity between the assumption-based and the research-based personas. This examination can serve as a great tool for assessing the alignment between organizational assumptions about the market and the market reality. The analysis also provides information for correcting and/or refining assumption as well as insight for the timeline and context of the next iteration of the process. The periodic repetition of the process not only helps to effectively maintain the alignment between assumption and reality but also helps the process to becomes more efficient overtime.

Our proposed two-part process is outlined in Fig. 4. The first part, which focuses on developing proto personas, starts by gathering information from key representatives of various departments that are the major stakeholders of the project. This information, which can be collected through an online survey, captures defining characteristics of the

customers. Because these characteristics are based on the input from various stake holders in different departments they tend to provide a more comprehensive picture of product users. This information can also provide additional insight for the format of the persona templates, which are created prior to workshop based on project goals. The responses are also analyzed for identifying relevant spectrums to be used in the workshop.



**Fig. 4.** Our proposed process for persona development

The workshop starts with a brief discussion of personas and a brief overview of the workshop. Participants are then formed into groups; they are encouraged to use the provided templates to create as many personas as they can. The personas are mapped along the spectrum to identify patterns which help merge personas into a final set. The workshop ends by ranking personas to prioritize implementation.

The second part of our proposed process focuses on developing research personas, driven by proto-personas created in first part. That is, we use the information obtained in the first part of the process as criteria for recruiting participants and conducting one-on-one interviews. The data that is obtained from individual interviews is carefully reviewed and organized into groups. The summarization of differences and similarities within and between groups not only helps to refine the groups but also helps to identify a set of spectrums that are relevant to the project. The patterns and clusters revealed by the spectrum analysis are then merged into a finalized set of personas. Next, personas are prioritized based on strategic goals.

The final step in our proposed process compares the differences between the obtained proto-personas and research personas with a gap analysis. The alignment (or its lack) between the two sets of personas provides insight for improving the consensus about and the accuracy of the assumptions. The gap analysis also provides insight for making the subsequent design and business decisions. The repetition of the proposed process not only documents the evolution of user needs but also serves as a suitable organizational assessment for assumption accuracy.

## 4 Method

We implemented the proposed process (see Fig. 4) at a Fortune 500 company. We were able to complete the study with a total of 25 participants. We recruited 11 senior stakeholders from critical departments to participate in the proto-persona workshop.

We then used an online tool to recruit and screen participants for the research persona portion of our study. In order to keep the process efficient, we selected a small representative sample for the first round of one-on-one semi structured interviews, which took approximately an hour for each participant.

## 5 Results

In this section we explained the results of the step by step process, displayed in Fig. 4, that we conducted at Fortune 500 company.

### 5.1 Pre-workshop Survey and Template Creation

We started the process with creating an online survey to gather customer information from key representatives of various departments of the company. In particular, we asked participants to tell us what they wished to know about customers, how often and what assumptions they made about the customers, what challenges did they face in understanding customers, and how confident they were in their understanding of customers. We also asked them to tell us the job title and type of customers they interacted with. To gather information for developing and conducting spectrum analysis during the workshop we asked participants to tell us what they thought were the defining characteristics of their customers. We also asked what they hoped to get out of the workshop (we used the responses to this question to make the workshop more effective). This survey along with a brief description about the project was sent to key representatives that accepted to participate in the workshop.

Based on responses that we received at this part of the process, we created a basic persona template and 5 spectrums. Our persona template included general information (name, job title, job roles), narrative, behaviors and beliefs, needs and goals, challenges or pain points, key initiatives and success metrics, and some specific elements (such as device preferences, services and features used) that were relevant to the project.

### 5.2 Proto-Persona Workshop

Eleven key representatives from departments representing, Customer Success, Customer Support, Outbound and Inbound Product Marketing, Digital Go-to-Market Experience, Product Management and Product Experience Design participated in our 2-hour proto-persona workshop. We divided the workshop participants into 3 groups comprised of individuals from diverse departments. We asked each group to brainstorm about their customers. Each group was required to use the persona template that was handed to them to come up with as many personas as they could in the allocated time. Once this step was completed, all personas were mapped through a collective discussion on the set of 5 spectrums that were developed based on pre-workshop survey data. After mapping each persona on the 5 spectrums, through directed discussions participants identified patterns and voted to merge similar personas.

This workshop resulted in 6 proto-personas. To prioritize design decisions, these personas were then ranked based on organizational goals and defined business strategies.

### 5.3 User Sampling and Interview

To conduct the research persona portion of the study we used an online recruitment tool, with which we invited and screened users for one-on-one interviews. We received 117 responses to our invitation. To make the process as efficient as possible we screened the responses and prioritized those that passed our screening criteria based on organization's business strategy. For the first pass, we selected the top 15 responses that represented various types of users (identified as personas in first part of the process) for one hour long online one-on-one interviews. We planned to decide whether we need to collect more interview data after we analyzed the first set of interviews. One participant did not show up for their scheduled time, resulting in 14 completed interviews. All interviews were recorded and transcribed for analysis. The analysis of 14 hours of semi-structured online interviews resulted in visible patterns suitable for developing research personas. This analysis indicated that we had enough data and thus we did not conduct any additional interviews.

### 5.4 Spectrum and Pattern Identification

A careful review of interviews resulted in grouping the data into different sets. This analysis resulted in identifying 6 spectrums. After mapping the interviews on the identified spectrums we were able to solidify the merging patterns into 8 personas. These personas proved to cover those personas that were developed in the proto-persona workshop and offered additional insight for creating two new personas. We then used IKE, an online persona development group decision support system (GDSS), [ike.wpi.edu](http://ike.wpi.edu), to make the data that was generated through this process available for review and further decision making by various stake holders and senior management. IKE, not only provided access to a repository of proto and research personas for decision making, but also made it possible for various departments in the organization to update or refine personas as needed (e.g., through subsequent proto-research persona development process that was discussed in this paper). Additionally, IKE can be used in future repetitions of the process to update personas. IKE can also be used to assess the accuracy of assumptions the organization makes about its consumers.

## 6 Discussion

Our results showed that our proposed process was effective and efficient in achieving its goals. The results of the workshop showed that the organization had pockets of tribal knowledge around who the customers were and what pain points they were facing. While this tribal knowledge was valuable to individual departments, the shared knowledge that was obtained through consensus building in the first part of our



proposed process proved to be far more valuable for making effective design decisions and setting overall business strategies.

We were able to develop our proto-personas effectively with a 2-hour workshop. Proto persona workshops are often conducted via longer workshops. We were able to conduct a shorter workshop effectively because we moved some of the work to pre-workshop process and we were careful to invite a smaller number but strategically highly important representatives and stake holders for the project. Shorter proto-persona workshops at organizations are highly valued because they require senior leadership participation.

In addition to being efficient, the results of proto-persona workshop showed that our proposed process was also effective in involving the senior leadership in an open and honest conversation about what they thought they knew about their customers. Our workshop process made it possible for them to clearly see conflicting viewpoints that existed among various stake holders. This in turn help them to see the need for validating the assumptions they make. Because such a validation can help to align design decisions with market needs, it further supports the business value that can be created through our proposed process.

The proposed process resulted in developing a set of personas that can provide foundation for a long term assessment of organizational performance. As discussed at the beginning of this article, proto persona and research personas provide only a snapshot of customer experience. To maintain an accurate understanding of the markets, personas must be treated as living documents, and as such they need to be validated and/or refined periodically. Thus, to continue their effectiveness for design decisions, personas must be validated or modified over and over again. Our proposed process provides an efficient procedure for periodic assessment of assumption based and research based personas. Our results indicated that research personas were relatively aligned with proto personas that were build based on consensus building during the workshop. While this suggests competitive advantage that can translate into improved design decisions, to maintain this advantage over time the same process must be repeated preferably in a year or before the next major design decision.

The proposed process can also be used to capture new markets. For example, by understanding the needs and pain points of prospective customers who are using competitor's services, companies can make design decisions that can attract unhappy users of competitor products toward their offerings.

## **7 Limitations**

We tested our proposed process in a fortune 500 company for a specific product. To extend the generalizability of our proposed procedure, more tests in companies of different sizes and for different types of products are warranted. Our results so far are encouraging and we are currently conducting our proposed process in another organization.

Our proposed process is particularly time and cost effective if proto-personas are mostly aligned with research personas. Such an alignment reflects an internally unified and accurate picture of the customer base which leads to improved product design and

consequently increased market share. To ensure the continuation of such business value, it is essential that our proposed process is repeated periodically.

## 8 Conclusion

Understanding customer needs is essential in creating compelling products that are successfully adopted by their intended users. This is a challenging task because customer needs and goals can evolve overtime. Both proto and research backed personas can become out of date as soon as they are created because they are representations of the best understanding about a set of customers at a given period of time. To stay up-to-date organization's understanding of their market needs must constantly evolve with the changes in their user base. To achieve this goal companies must treat personas as living documents and validate their assumptions periodically through a systematic and effective process.

In this study we proposed a step by step process for achieving this goal. By harnessing organizational knowledge through proto-persona development and combining it with the higher fidelity understandings achieved through research backed personas, our proposed process facilitates an effective procedure for developing and maintaining accurate picture of consumer market. The proposed process not only provides a road map for keeping customers at the heart of design decisions, it also impacts the design process by improving internal collaborations through shared understanding of customer needs. By facilitating a process for a better understanding of user needs and by developing a common understanding of user needs internally, our proposed process can help companies to develop competitive products and services.

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