

Cultural Elements Framework for Information Systems (CEFIS) **User Guide**

Project: CISE-MSI: RPEP:S&CC:
Information Systems meet CUltural COmpetencies (IS-CU
CO): Enabling data-driven decision-making in underserved
Hispanic populations

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Overview

The Cultural Elements Framework for Information Systems (CEFIS) User Guide document supports *Software Engineers / Website Developers* who need to incorporate cultural elements into the design of information systems. CEFIS also includes specific guidelines for the Hispanic culture and the application domain of Food Assistance Information Systems (FAIS), e.g., websites for food pantries. CEFIS is a product of the project CISE-MSI: RPEP:S&CC: Information Systems meet CULTural COmpetencies (IS-CUCO): Enabling data-driven decision-making in underserved Hispanic populations, sponsored by the National Science Foundation.

The CEFIS document has a disclaimer regarding the scope, completeness, and structure of the cultural elements. The CEFIS definition of culture and its breakdown into cultural elements is one of many; the cultural elements were selected from other authors' work on culture [1,2,3] based on their significance towards information systems surrounding Hispanic culture within the domain of food security. The research team is aware that CEFIS could have included more cultural elements, been organized differently, and included more mappings for each cultural element. CEFIS structure will be refined as we start gathering feedback from its users.

The sections in the document include CEFIS Structure, Guidelines for Software Engineers/Website Developers, Navigation, and CEFIS Usage Scenario.

CEFIS Structure

The Cultural Elements Framework for Information Systems provides elements of culture and a set of mappings into user interface components of the information system. CEFIS provides a decomposition of culture into elements organized into three groups (i.e., Norms, Values, and Symbology). The groups and the cultural elements are numbered for identification purposes only, and there is no priority among them. CEFIS is shown as a Work Breakdown Structure (WBS). Moreover, software engineers and web developers can access an interactive version of CEFIS on the web built with the Lucid chart tool. Figure 1 shows the CEFIS WBS. The WBS is read from left to right.

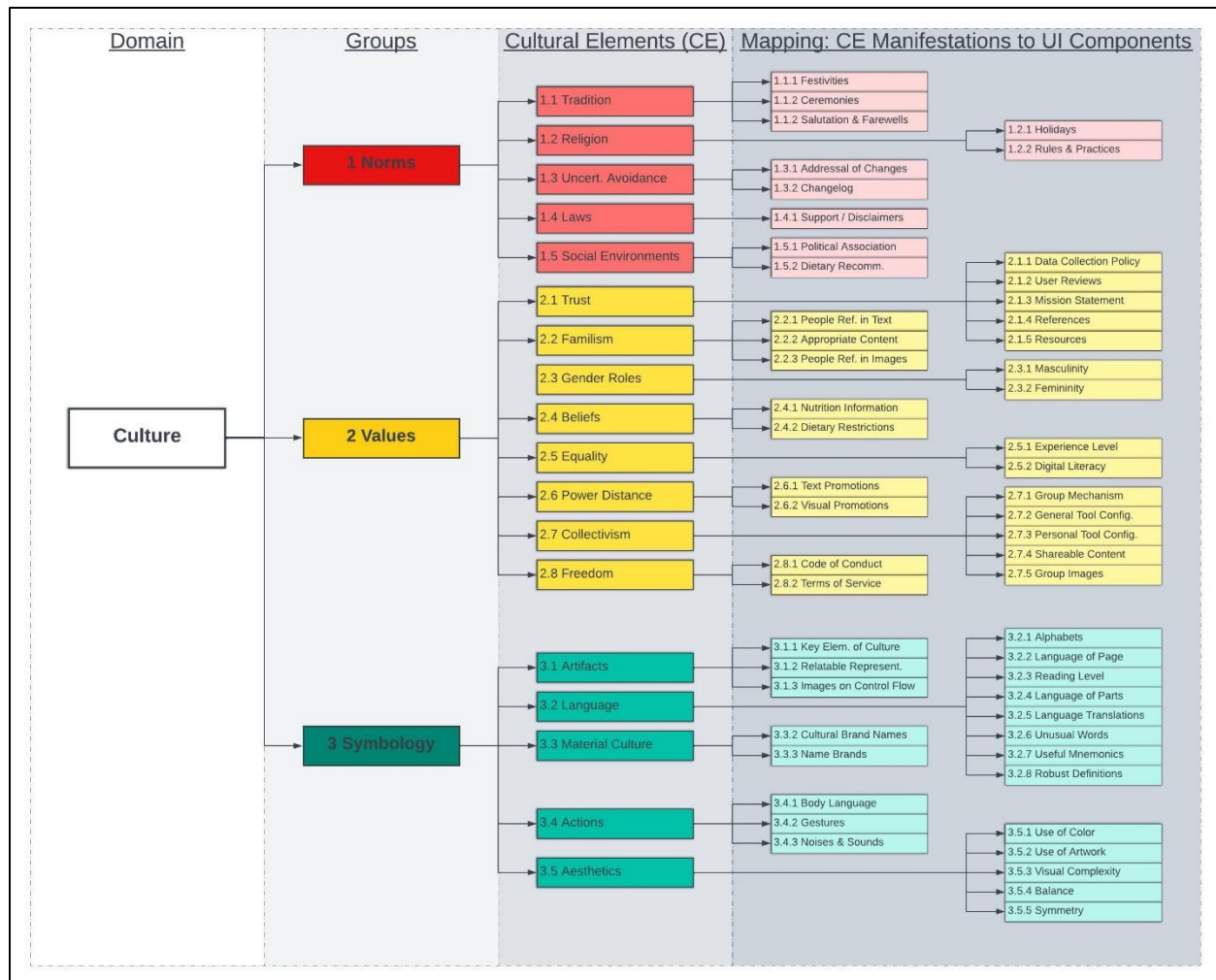


Fig. 1: Cultural Elements Framework for Information Systems (CEFIS) work breakdown structure.

CEFIS also provides a set of mappings from manifestations of cultural elements onto user-interface components of the information system, as shown in Figure 1. A cultural element may have several manifestations. CEFIS provides some manifestations of cultural elements and each manifestation maps onto a user interface component. Like cultural elements, a mapping has an assigned number for identification purposes, and there is no priority among mappings. In addition, the more mappings implemented in an IS, the better the user experiences the target culture. A mapping has three parts: 1) a defined user interface component, 2) a specific attribute of that UI component, and 3) a Boolean expression that guides the software engineer (e.g., web developer) on how to test whether the cultural element has been incorporated correctly into the information system. For instance, a mapping for “Tradition” (i.e., cultural element) to 1) a button (i.e., user interface component), 2) with an image (i.e., UI component characteristic), and 3) Boolean expression: There is an image (“calaberita”) that represents a tradition (“Día de los Muertos”) in a button.

Guidelines for Software Engineers/Website Developers

Software engineers/website developers may increase the usage and adoption of FAIS by Hispanics by utilizing CEFIS to identify and incorporate a set of elements of Hispanic culture into the User Interface (UI) design of the information system/website—the more cultural elements and UI components the software engineer considers, the better the experience for the target audience (e.g., Hispanics). However, all projects have resource limitations and hard deadlines that may limit the number of cultural elements and mappings included in the IS.

Software engineers should first identify the target audience's culture and document their needs and potential challenges in customer requirements. These requirements may also include a description of the IS deployment environment, user profiles, and IS application domain (e.g., healthcare, food security).

During the design phase, software engineers may use CEFIS to become aware of cultural elements and then select the potential cultural elements (e.g., traditions, familism) that are more appropriate to the type of system (e.g., food pantry) and the needs and challenges of the target culture (e.g., Hispanics). The selected cultural element manifestations will then be mapped to UI design components of the IS.

Cultural Elements Modifiers

Modifiers provide a mechanism for analyzing different behaviors within population subgroups in a culture. Modifiers, such as *Demography*, provide perspective for the varied life experiences within Hispanic subgroups. For example, in the religion cultural element, the age modifier means that each age group perceives the religion differently. Software engineers should be aware of the modifiers because they may identify types of users with different needs and challenges in each cultural element. Therefore, software engineers should examine if a modifier may show different behaviors in the Hispanic subgroups for a cultural element during the analysis and design development phases for information systems. There are some examples of modifiers in the cultural elements of the Symbology group.

Navigation

CEFIS provides a detailed description of each of the cultural elements and their user interface mappings. A group of cultural elements has a definition, intent, and examples, as shown in Figure 2.1.

1 Norms	
Group Definition.	<p>Norms are the formal and informal rules regarding what kinds of behavior are acceptable and appropriate within a culture. Norms are specific to a culture, time period, and situation.</p> <p><u>Formal norms</u>, also called mores and laws, refer to the standards of behavior considered the most important in any society. Examples in the United States include traffic laws, criminal codes, and—in a college context—student behavior codes addressing such things as cheating and hate speech.</p> <p><u>Informal norms</u>, also called folkways and customs, refer to standards of behavior that are considered less important but still influence how we behave.</p> <p>[1] https://pressbooks.howardcc.edu/soci101/chapter/3-2-the-elements-of-culture</p>
Examples.	Table manners, civic participation, traffic laws or criminal code; how we interact with a cashier or ride in an elevator.
Intent.	The purpose of <i>Norms</i> is to ensure that cultural norms are addressed in the design of any applicable software elements of the system. By understanding the audience's cultural norms (i.e., behaviors), different elements can be designed to interact with such norms thus creating an environment that increases the usability and familiarity of the system.

Fig. 2.1: Group – 1 Norms

Each cultural element within a group has a definition, intent, general examples, and in-practice examples, as depicted in Figure 2.2.

2.1 Values > Trust

Cultural Element Definition.	Assured reliance on the character, ability, strength, or truth of someone or something [Merriam-Webster]. It involves confidence and faith that the person or entity being trusted will act in a certain way that is beneficial or expected; each party upholds its part of any agreement.
General Examples.	confidentiality of collected data; integrity of collected data; availability of service; information accuracy; personally identifiable information is encrypted
Intent.	The intent of <i>Trust</i> is to outline best practices to foster trust in the system, system services, and sponsors of the system; additionally, the content of the information is tailored to the target audience (i.e. culturally relevant information)
In-practice Examples.	1. The information that the food pantry collects will not be sold/shared with outside parties unless specified otherwise (i.e. government sponsored). 2. In some food pantries that are not sponsored by the government, personal identification information may be reviewed but not stored; demographic information (e.g., household size, income range) is collected. 3. Older generations of Hispanics tend to trust in-person services versus online or automated services (privacy and security are concerns).

Fig. 2.2: Cultural Element – 2.1 Trust

The in-practice examples section provides a mechanism to tailor CEFIS to a specific culture and/or application domain.

Below each cultural element is a set of User Interface mappings; Figure 2.3.1 and 2.3.2 show a few examples of some mappings.

2.1.1 Values > Trust > Data Collection Policy

UI Mapping. The website **includes a disclaimer** detailing the **data review/collection policy**. The disclaimer will specify **what data is reviewed/collected, how the data is reviewed/collected, when the data is reviewed/collected, who will use the reviewed/collected data (internal/external parties), and why it was necessary to review/collect the data**. Personally identifiable information will only be collected if required by any sponsors (i.e., government sponsored sites).

Fig. 2.3.1: UI Mapping – 2.1.1 Data Collection Policy

2.1.5 Values > Trust > Resources

UI Mapping. For **text** that **includes a hyperlink to an outside resource** (e.g., other websites), **the system includes a note that the links are continuously verified, endorsed, and updated. If this is not possible, it is mentioned.**

Fig. 2.3.2: UI Mapping – 2.1.5 Resources

The CEFIS document is read from top to bottom, but due to the size of the framework, the CEFIS document is most easily navigated through the table of contents. From there, users can navigate to a cultural element by clicking on the name of the element.

As groups are further decomposed into cultural elements, the reference number will adjust accordingly. For instance, elements of the group Norms will have the numbering scheme 1.1, 1.2,

etc. The WBS (shown in Fig. 1) will follow the same numbering scheme. Figure 2.4 shows the Table of Contents and its structure.

Table of Contents	
Introduction	5
Goal.....	5
Importance	5
CEFIS Structure.....	6
Guidelines for Software Engineers/Web Developers	8
Cultural Elements Modifiers	8
Features of CEFIS Group, Cultural Element, and Mapping: CE Manifestation to User-Interface Component	9
Group	9
Cultural Element	9
Mapping: CE Manifestation to User-Interface Component	9
Disclaimers	10
1 Norms.....	11
1.1 Norms > Tradition.....	11
1.1.1 Norms > Traditions > Festivities	12
1.1.2 Norms > Traditions > Ceremonies.....	12
1.1.3 Norms > Traditions > Salutation and Farewells	12
1.2 Norms > Religion.....	12
1.2.1 Norms > Religion > Holidays.....	13
1.2.2 Norms > Religion > Rules and Practices	13

Fig. 2.4: Table of Contents

As groups are decomposed into cultural elements, the group is still visible for easier navigation. The cultural element with number 1.1 (i.e., Tradition) includes the group called Norms slightly greyed out but gives the user a general idea of their location within the document. This can be seen in Figure 2.5.

1.1 Norms > Tradition

Fig. 2.5: Naming Structure of groups and their cultural elements

CEFIS Usage Scenarios

The purpose of the use case scenarios is to assist the web developers walk through the CEFIS framework so they can incorporate cultural elements into their websites. Below are three use cases to help the user understand how to properly navigate the document. The scenarios consider the need to add cultural elements for Hispanics, food pantries, and take into consideration the effect of cultural element modifiers such as age and education level.

Use Case Scenario 1

Website developers, Rosa and Pedro, would like to incorporate Hispanic traditions into their food pantry website because a high percentage of their customers are Hispanic.

1. The website developers (i.e., Rosa and Pedro in this case) must identify the culture that is being targeted with the system which is Hispanic culture. The website developers should determine—based on the culture—what elements of the website are representative of the work that is being done. Since Rosa and Pedro are focused on the *Traditions* of Hispanic culture, they should navigate to the following section of the document:

1.1 Norms > Traditions

This can be achieved by first going to the Table of Contents to find the page number of that section.

1 Norms	11
1.1 Norms > Tradition	11

Fig. 3.1.1: Image of Tradition in Table of Contents

If using the interactive digital version, navigate to Norms and then hold CTRL+SHIFT to view clickable sections. Click on the three bars (next to **1 Norms`**) to see the details:

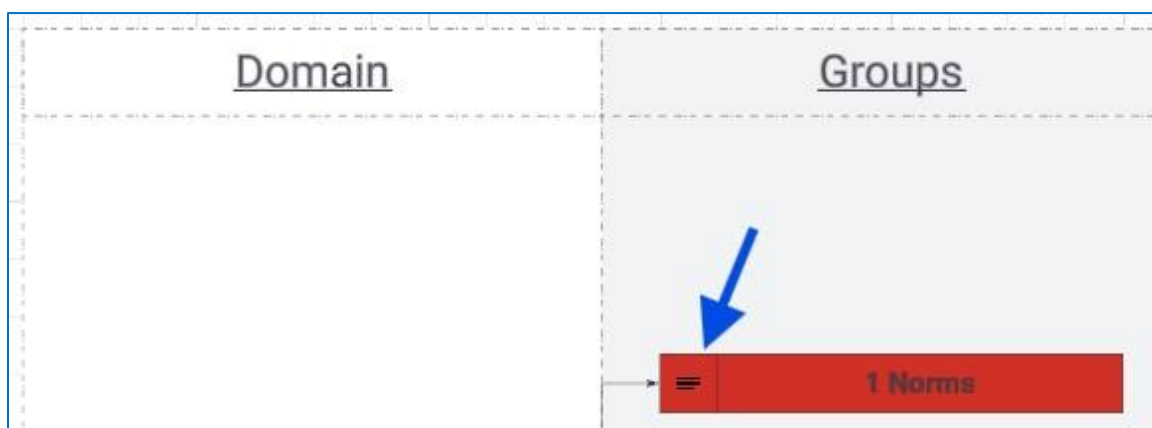


Fig. 3.1.2: Lucidchart Norms – Clickable 1



Fig. 3.1.3: Lucidchart Norms Details

Hold CTRL+SHIFT to reveal clickable sections once again and click on **1 Norms** to show the cultural elements:



Fig. 3.1.4: Lucidchart Norms – Clickable 2

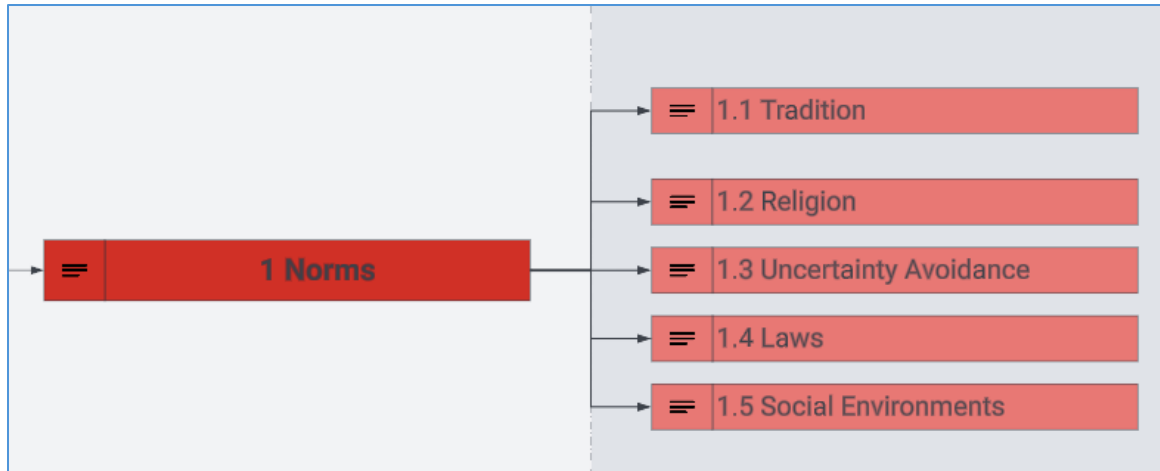


Fig. 3.1.5: Lucidchart Norms Cultural Elements

2. The cultural element of *Tradition* will have an accompanying table (as in Fig. 3) that gives all the necessary details as well as a few examples.

1.1 Norms > Tradition	
Cultural Element Definition.	A tradition is a belief or behavior with significance or symbolism towards past origins. Traditions are a component of cultural expressions and folklore. They are passed down, persist, and evolve from within a group or society. [1] https://dbpedia.org/page/Tradition
General Examples.	holidays (e.g., Memorial Day, Day of the Dead, April Fools' Day); celebrations (e.g., carnival, sweet sixteen, <u>quinceañeras</u>); meaningful clothes; salutations, farewells, and greetings.
Intent.	<i>Tradition</i> ensures that targeted user groups' traditions are represented in UI components. The appropriate representation of a targeted culture's customs and traditions could result in the use and adoption of the information system.
In-practice Examples.	<p>Día de <u>los</u> Muertos is a traditional celebration largely observed in Mexico. It is traditionally celebrated on November 1st and 2nd, but this may change depending on the locality [1]. For example:</p> <ol style="list-style-type: none"> 1. Images related to Día de <u>los</u> Muertos can be added to the style of the system a week prior. 2. Other images like logos can be adjusted to hint at the celebration. 3. The pantry logo can be modified with colors and imagery that refer to this celebration. <p>[1] https://dbpedia.org/page/Day of the Dead [2] https://www.pewresearch.org/social-trends/2021/05/14/black-and-hispanic-americans-see-their-origins-as-central-to-who-they-are-less-so-for-white-adults/</p>

Fig 3.1.6: Tradition table

One significant entry in the table that the user should pay attention to is the “*In-practice Examples*” row. This provides culture-specific examples for the user to better understand how the user interface mapping is achieved.

Alternatively, if using the interactive digital tool, the same table is viewable by (1) holding CTRL+SHIFT to view clickable sections, (2) clicking on the three bars (next to `1.1 Tradition`). This is shown in Fig. 3.1.7 below:

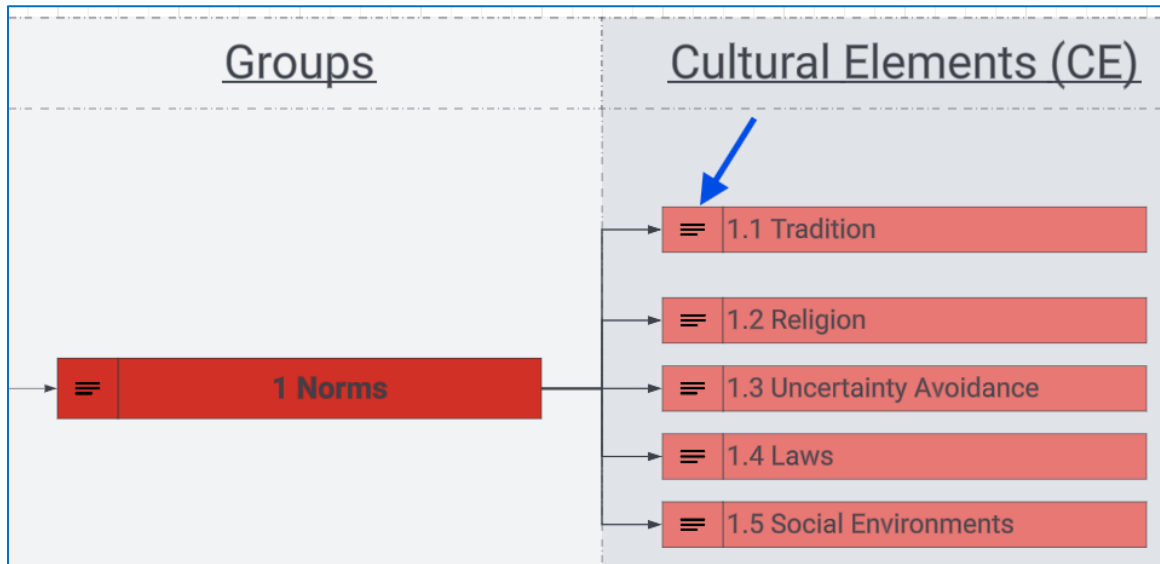


Fig. 3.1.7: Lucidchart Tradition – Clickable 1

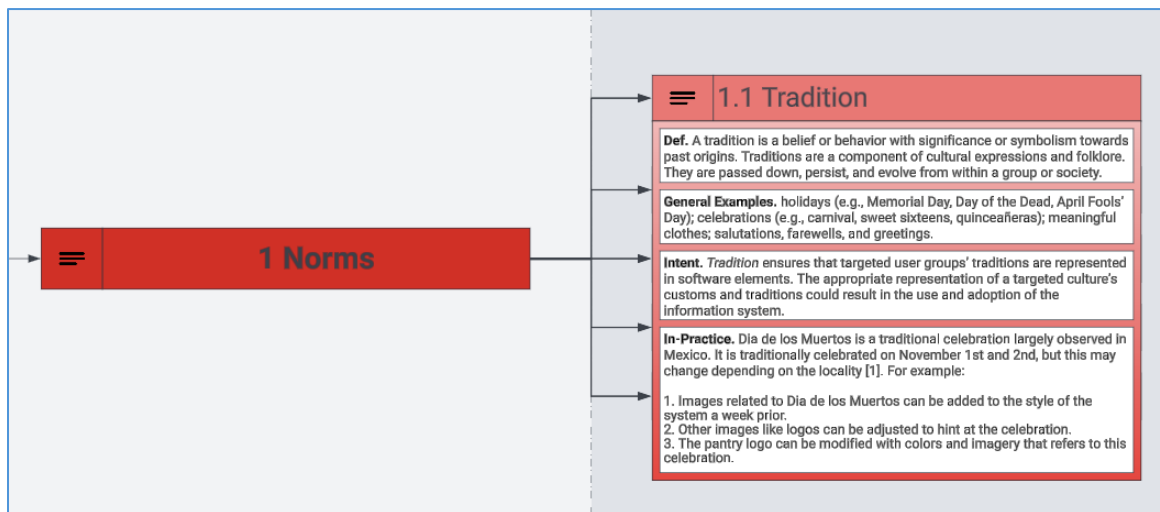


Fig. 3.1.8: Lucidchart Tradition Details

3. After the website developers gain a better understanding of *Tradition*, they may decide that they want to incorporate some aspects of this into their website. Suppose that after reading about Día de Los Muertos in the In-Practice Examples section, Rosa and Pedro want to fully implement this idea. As *Tradition* is a cultural manifestation, there are several user-interface mappings that will allow Rosa and Pedro to achieve this.
4. Cultural element manifestations of *Tradition* are listed just below the table (Fig. 3.1.6) which the website developers are free to explore:

1.1.1 Norms > Traditions > Festivities

UI Mapping. Representations of the audience's traditional festivities are found as **images or text in the content displayed**. **The information system must show some representations through images and text within the appropriate time related to the traditional festivities.**

1.1.2 Norms > Traditions > Ceremonies

UI Mapping. Representations of the audience's customary ceremonies are found as **images or text in the content displayed**. **The information system must show some representations through images and text.**

1.1.3 Norms > Traditions > Salutation and Farewells

UI Mapping. Salutations and Farewells depicted in **content** displayed through **images or videos** of the audience's culture are **found within the system and follow the expected customs.**

Fig. 3.1.9: Tradition Cultural Element Manifestations

Alternatively, if using the interactive digital tool, the same information is viewable by (1) holding CTRL+SHIFT to view clickable sections, (2) clicking on the name `1.1 Tradition`. This is shown in Fig. 3.1.10 below:

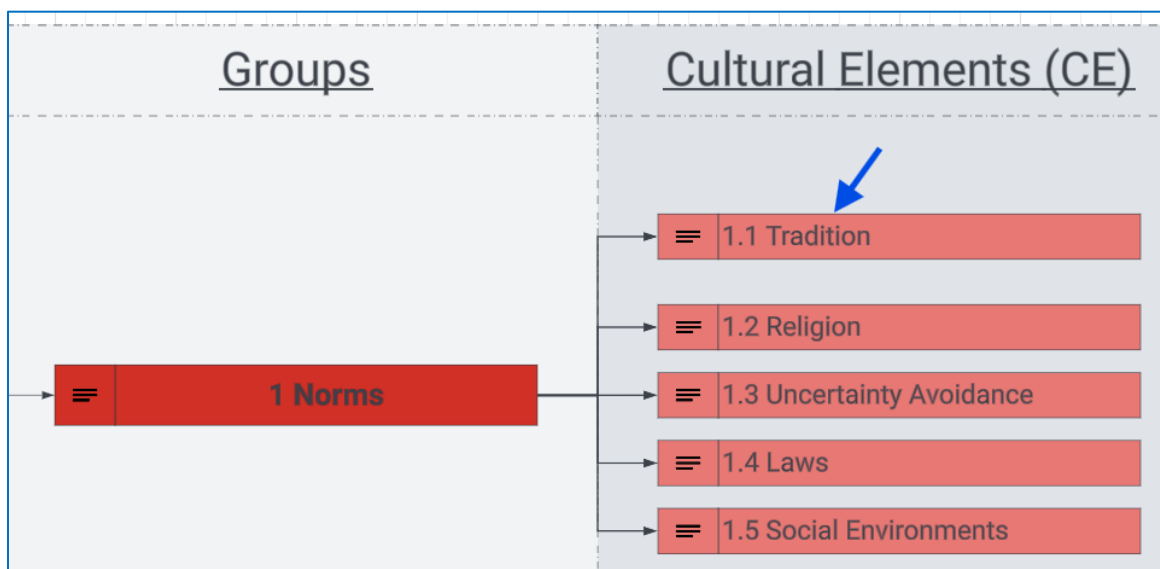


Fig. 3.1.10: Lucidchart Tradition – Clickable 2



Fig. 3.1.11: Lucidchart Tradition CE Manifestations

Next, (1) hold CTRL+SHIFT to view clickable sections, (2) click on the three bars (next to `1.1.1 Festivities`). This is shown in Fig. 3.1.12 below:



Fig. 3.1.12: Lucidchart Festivities CE Manifestation – Clickable 1



Fig. 3.1.13: Lucidchart Festivities CE Manifestation Details

The user-interface mappings for each manifestation provide a direct explanation on what user-interface component to inspect, what attribute of that user-interface component to modify, and a Boolean test case for the user to verify the implementation.

5. If the user is not very experienced with the culture, they may review the In-Practice Examples section in the *Tradition* table to gain a better understanding of what types of representations are usable, but just keep in mind that the list is not exhaustive. For Rosa and Pedro, a description of Dia de los Muertos is provided which is most closely aligned with Festivities.
6. There are many special days in Hispanic culture worthy of celebration, so depending on the current date, Rosa and Pedro may decide to simply pick the closest festivity.

7. By using the manifestation of Festivities (see section 1.1.1 in Fig. 3.1.9), the UI-Mapping specifically states that within the content displayed, images or text should have representations of the audience's traditional festivities. Furthermore, the Boolean test case reads: "The information system must show some representations through images and text within the appropriate time related to the traditional festivities."
8. Suppose Rosa and Pedro notice that Dia de los Muertos is fast approaching. They now know that to properly represent *Tradition* on their website, they must incorporate some images related to Dia de los Muertos. They can also include some textual references to the holiday as well.
9. If the website developers are able to modify these components of their website's user interface, then they have partially incorporated *Tradition* into their website.

As mentioned earlier, there is no need to try and incorporate every single aspect of culture. The needs of the community, target culture, type of work, and application domain of the information system should guide which elements of culture are most relevant to the IS/web site of interest.

However, it's more likely that the cultural element of Tradition will be satisfied as more manifestations are mapped to the information system.

Use Case Scenario 2

Website developers, Rosa and Pedro, know that Hispanics enjoy hot chocolate, and Mexicans have a strong preference for the brand *Abuelita*. They are sure that if they advertise that name brand of chocolate, then more people will visit the food pantry.

1. The website developers (i.e., Rosa and Pedro in this case) have identified Hispanics as the target culture, but they have also decided on a particular food item to carry in their food pantry. Since Rosa and Pedro are focused on a very specific name brand food item of Hispanic culture, they should navigate to the following section of the document:

3.3 Symbology > Material Culture

This can be achieved by first going to the Table of Contents to find the page number of that section.

3.3 Symbology > Material Culture	28
3.3.1 Symbology > Material Culture > Cultural Brand Names	29
3.3.2 Symbology > Material Culture > Name Brands	29

Fig. 3.2.1: Image of Material Culture in Table of Contents

If using the interactive digital version, navigate to Symbology and then hold CTRL+SHIFT to view clickable sections. Click on the three bars (next to **3 Symbology`**) to see the details:



Fig. 3.2.2: Lucidchart **Symbology** – Clickable 1

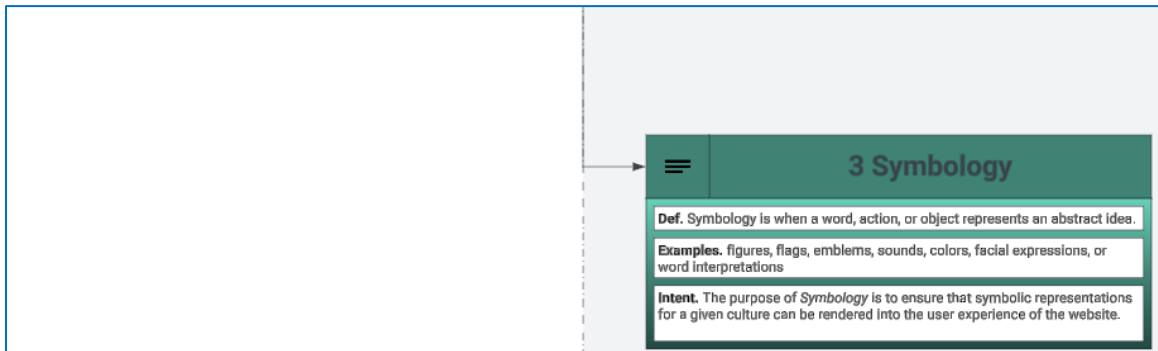


Fig. 3.2.3: Lucidchart **Symbology** Details

Hold CTRL+SHIFT to reveal clickable sections once again and click on **3 Symbology** to show the cultural elements:

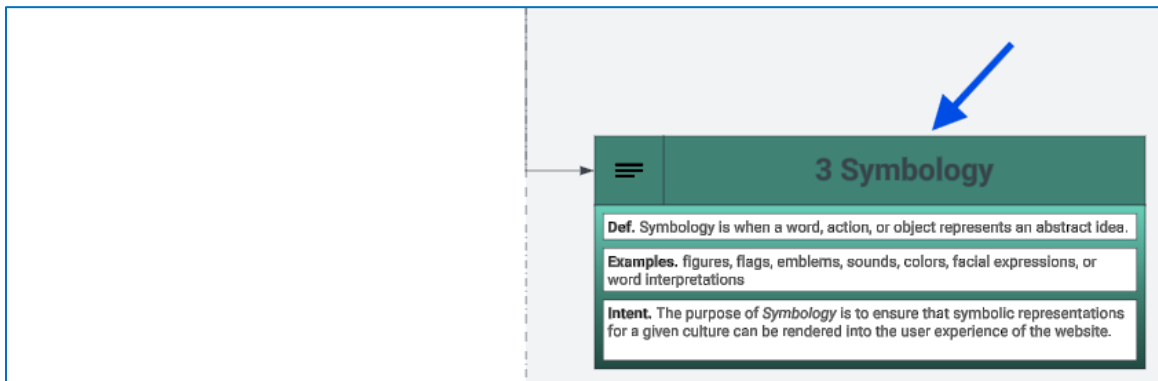


Fig. 3.2.4: Lucidchart **Symbology** – Clickable 2

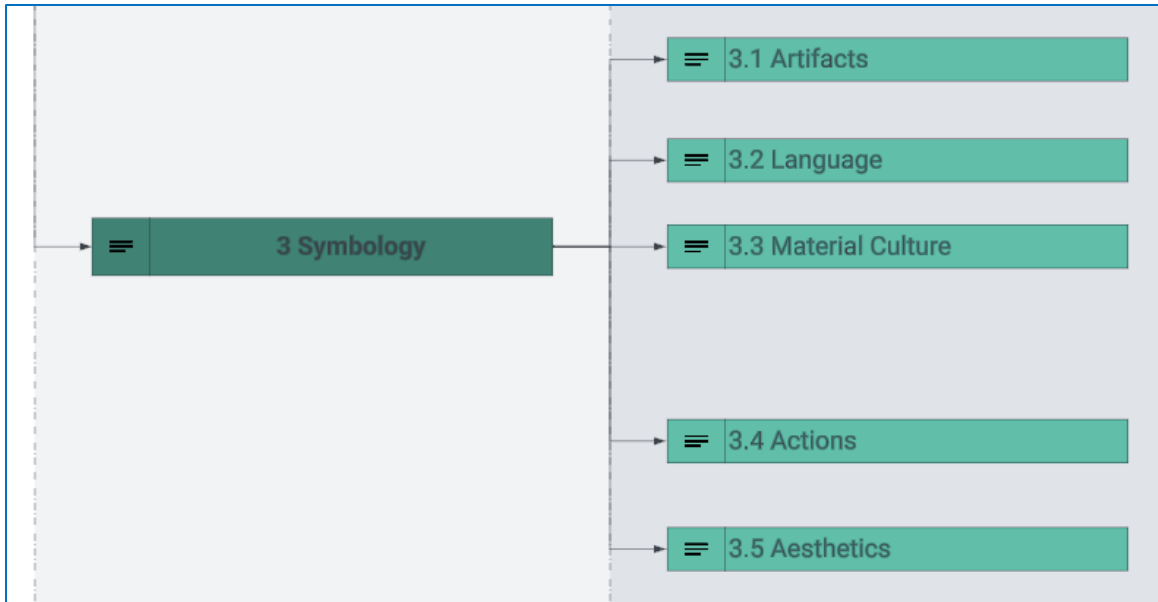


Fig. 3.2.5: Lucidchart Symbology Cultural Elements

2. The cultural manifestation of *Material Culture* will have an accompanying table (as in Fig. 3.1.6) that gives all the necessary details as well as a few examples.

3.3 Symbology > Material Culture	
Cultural Element Definition.	The relationship between a people and their things. This includes the value and priority that people put into acquiring certain objects and materials [anecdotal]. [1] https://www.sciencedirect.com/topics/nursing-and-health-professions/material-culture
General Examples.	Oreo cookies, Vicks Vapor Rub, iPhones
Intent.	<i>Material Culture</i> ensures that the content presented to the user is aligned with the preferred choices of the user. An individual's willingness to pursue certain foods, services, or commodities over others may be influenced by the availability and preference for certain items over others.
In-practice Examples.	1. Text, images, and visual media that depicts popular Hispanic food choices, such as Abuelita hot chocolate, may be used as a sentiment to attract more Hispanics to food pantries. 2. Name brands and logos that are local to Hispanic regions, such as Goya, may be used to increase a Hispanic user's familiarity with a food pantry.

Fig 3.2.6: Material Culture table

One significant entry in the table that the user should pay attention to is the “*In-practice Examples*” row. This provides culture-specific examples for the user to better understand how the user interface mapping is achieved.

Alternatively, if using the interactive digital tool, the same table is viewable by (1) holding CTRL+SHIFT to view clickable sections, (2) clicking on the three bars (next to `3.3 Material Culture`). This is shown in Fig. 3.2.7 below:

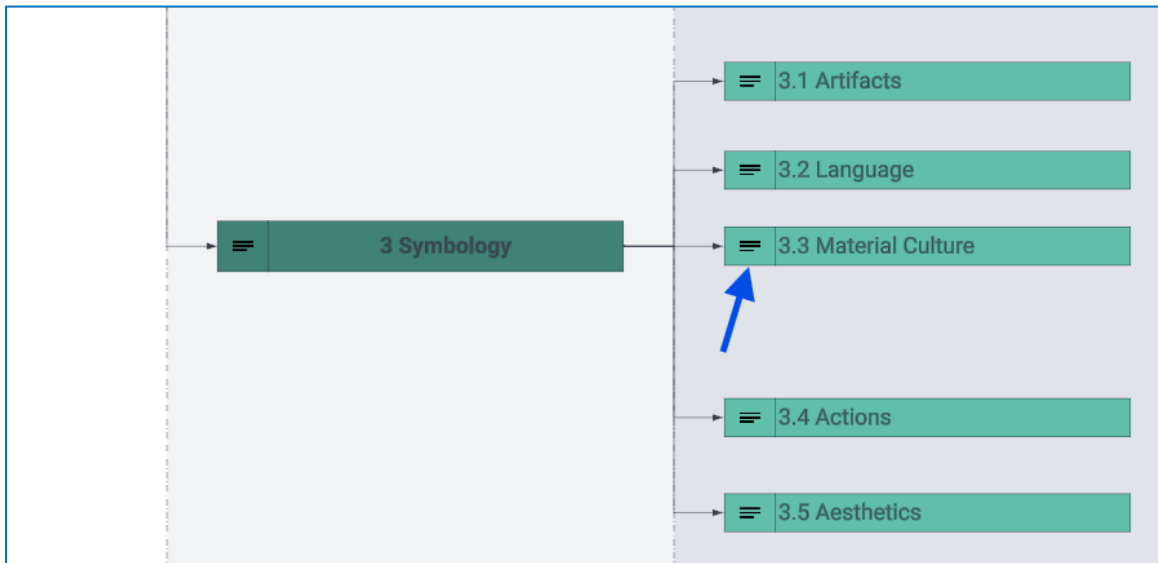


Fig. 3.2.7: Lucidchart Material Culture – Clickable 1

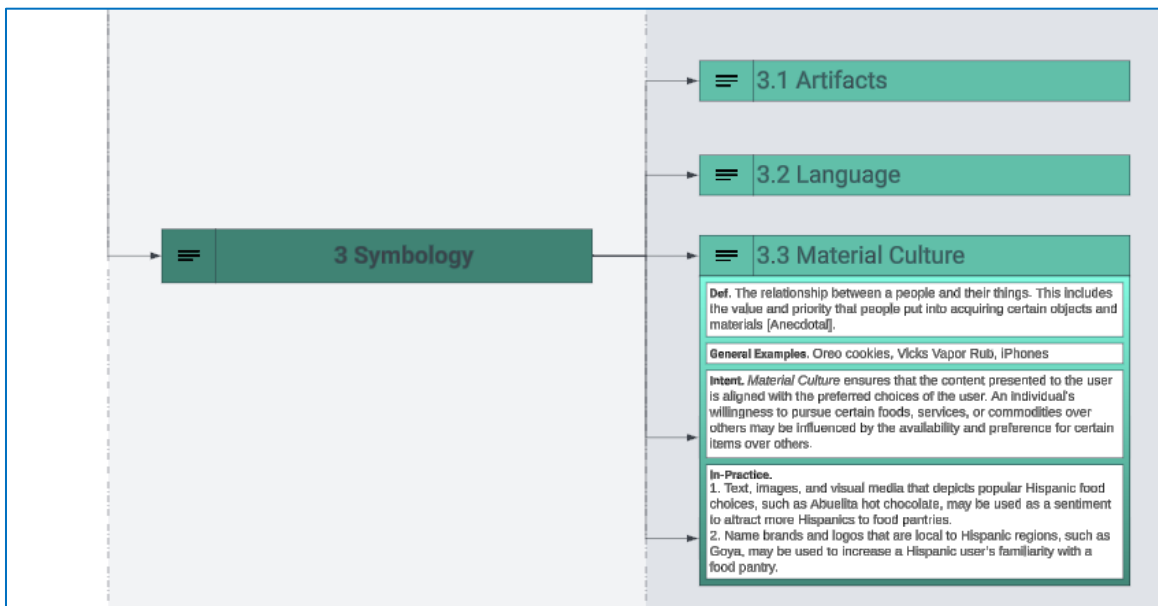


Fig. 3.2.8: Lucidchart Material Culture Details

3. After the user gains a better understanding of *Material Culture* by reading the definition and examples, they can begin to look at the cultural element manifestations.
4. The cultural element manifestations for *Material Culture* are listed just below the table (Fig. 3.2.6) which the user is free to explore:

3.3.1 Symbology > Material Culture > Cultural Brand Names

UI Mapping. When **images** or **videos** are applied to website content, it is true that the **items depicted are items from brands that appear prevalently throughout the homes of the targeted culture.**

3.3.2 Symbology > Material Culture > Name Brands

UI Mapping. When **images, videos, or text** are applied to website content, it is true that the **items depicted are items from recognizable companies that usually charge higher prices for their goods.**

Fig. 3.2.9: Material Culture CE Manifestations

Alternatively, if using the interactive digital tool, the same information is viewable by (1) holding CTRL+SHIFT to view clickable sections, (2) clicking on the name `3.3 Material Culture`. This is shown in Fig. 3.2.10 below:

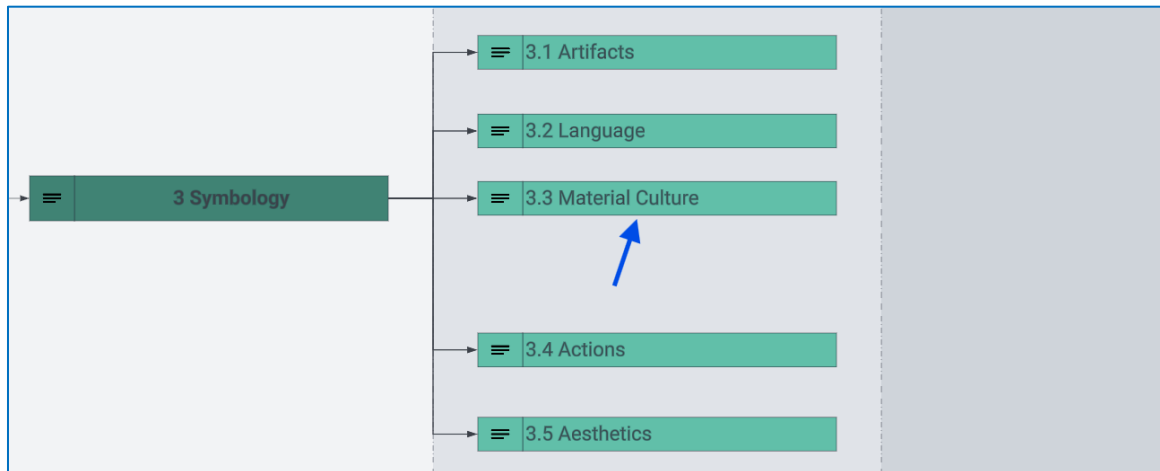


Fig. 3.2.10: Lucidchart Material Culture – Clickable 2

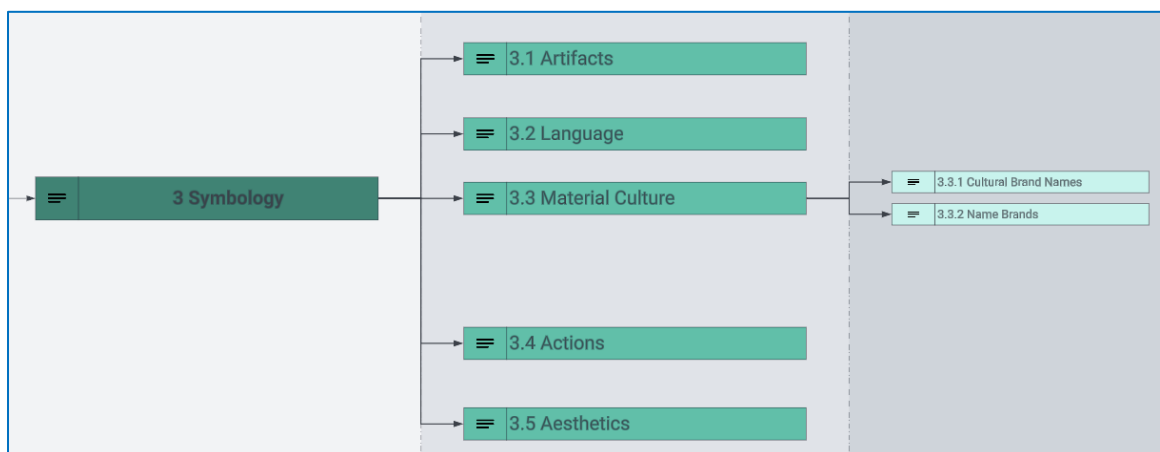


Fig. 3.2.11: Lucidchart Material Culture CE Manifestations

Next, (1) hold CTRL+SHIFT to view clickable sections, (2) click on the three bars (next to `3.3.1 Cultural Brand Names` or `3.3.2 Name Brands`). This is shown in Fig. 3.2.12 below:



Fig. 3.2.12: Lucidchart Cultural Brand Names/Name Brands CE Manifestation – Clickable 1

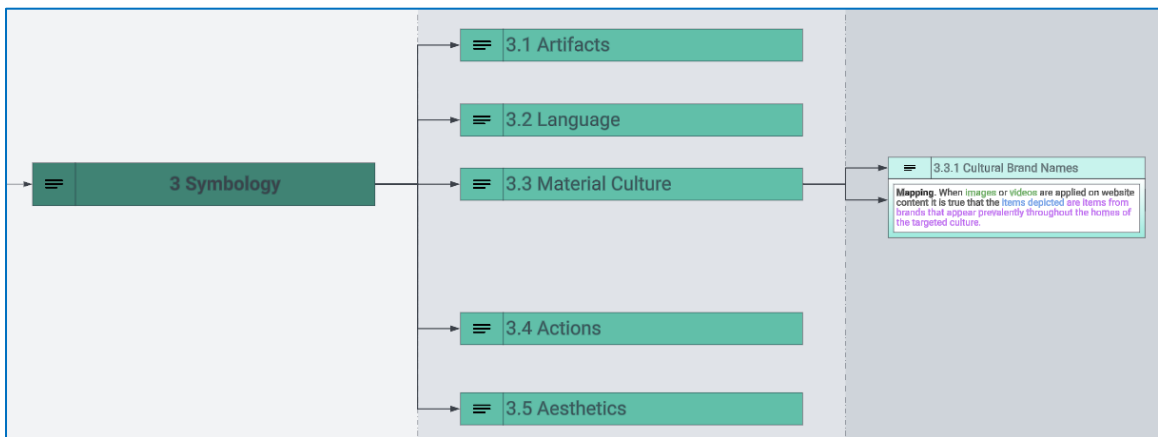


Fig. 3.1.13a: Lucidchart Cultural Brand Names CE Manifestation Details

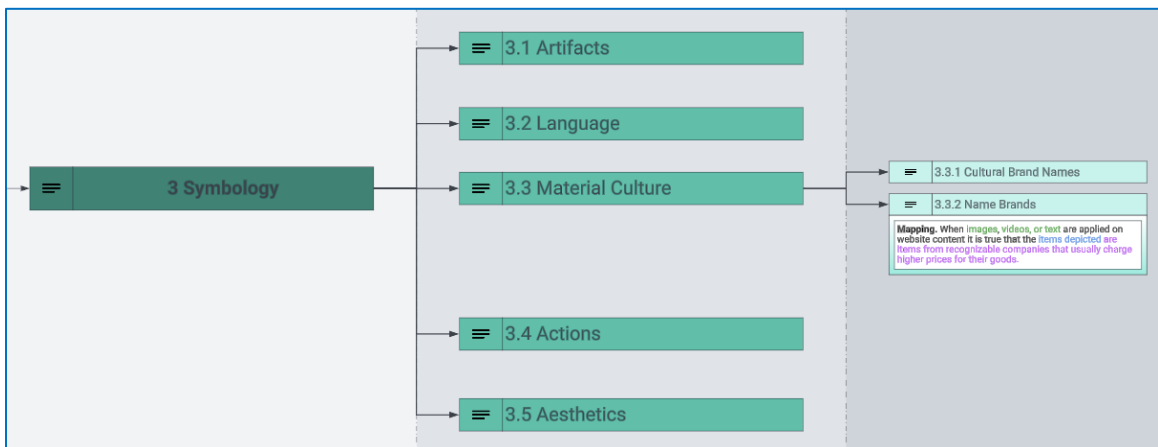


Fig. 3.1.13b: Lucidchart Name Brands CE Manifestation Details

The user-interface mappings for each manifestation provide a direct explanation on what user-interface component to inspect, what attribute of that user-interface component to modify, and a Boolean test case for the user to verify the implementation.

As Rosa and Pedro have already decided on a particular name brand, they should focus on the manifestation *Name Brands*.

6. The accompanying UI-Mapping specifically states that within the images, video, or text, depicted items are from recognizable companies, and *Abuelita* is that type of item.
7. As chocolate may be one of the food items carried by food pantry, Rosa and Pedro can modify any mention of chocolate or any images of chocolate by using images or text related to the *Abuelita* name brand.
8. If they can modify these components of their website's user interface, then they have partially incorporated *Material Culture* into their website.

As mentioned earlier, there is no need to try and incorporate every single aspect of culture. The needs of the community, target culture, type of work, and application domain of the information system should guide which elements of culture are most relevant to the IS/web site of interest.

However, it's more likely that the cultural element of Material Culture will be satisfied as more manifestations are mapped to the information system.

Use Case Scenario 3

Website developers, Rosa and Pedro, know that religion plays an important role in the lives of some Hispanics. They want to be more inclusive and make sure to gain the attention of both adults and children when doing so.

1. The website developers (i.e., Rosa and Pedro in this case) have identified Hispanics as the target culture, and they know that **religion** is the main point of interest.
2. Since Rosa and Pedro are focused on **imagery** related to religion, there are two possible cultural elements that may fit their needs:

1.2 Norms > Religion

3.1 Symbolology > Artifacts

Religion or Artifacts can be used as cultural elements. Pedro and Rosa should review the content provided in the framework for each cultural element so that they can choose the more appropriate one. The page numbers of both cultural elements can be found in the Table of Contents.

1 Norms	11
1.1 Norms > Tradition	11
1.1.1 Norms > Traditions > Festivities	12
1.1.2 Norms > Traditions > Ceremonies	12
1.1.3 Norms > Traditions > Salutation and Farewells	12
1.2 Norms > Religion	12
1.2.1 Norms > Religion > Holidays	13
1.2.2 Norms > Religion > Rules and Practices	13

Fig. 3.3.1: Image of Religion in Table of Contents

On that page, they can see the following table for the cultural element.

1.2 Norms > Religion	
Cultural Element Definition.	<p>Religion is a system of beliefs, values, and practices concerning what a person holds sacred or considers to be spiritually significant [1].</p> <p>Religions have practices that their members are supposed to follow. Members generally agree about the nature of those practices and how strictly members adhere to these practices. Practices are an important part of religious experiences. Portrayal of these practices could result in the use and adoption of the information system.</p> <p>[1] https://opentextbc.ca/introductiontosociology/chapter/chapter-15-religion/ [2] https://uen.pressbooks.pub/speakingofculture/chapter/chapter-9-religion-and-culture/</p>
General Examples.	eating practices, sacred time periods, dress code, and moral behavior
Intent.	<p><i>Religion</i> ensures that the predominant religious norms of the audience are represented on a website.</p> <p><i>Note:</i> Be cautious when there is no clear predominant religion.</p>
In-practice Examples.	<p>While Hispanics are mostly Christian, there is a shift in religions stemming from migration. During the Lent, they will fast (typically by abstaining from consuming meat) each Friday after Ash Wednesday. As an example of inclusivity:</p> <p>1. Images can depict seafood on Fridays.</p> <p>[1] https://www.pewresearch.org/religion/2023/04/13/among-u-s-latinos-catholicism-continues-to-decline-but-is-still-the-largest-faith/</p>

Fig. 3.3.2: Religion Table

Next, they can navigate to the other cultural element of interest:

3 Symbolology	25
3.1 Symbolology > Artifacts	25
3.1.1 Symbolology > Artifacts > Key Elements of Culture	26
3.1.2 Symbolology > Artifacts > Relatable Representations	26
3.1.3 Symbolology > Artifacts > Images on Control Flow Elements	26

Fig. 3.3.3: Image of Artifacts in Table of Contents

On that page, they can see the following table for the cultural element of interest:

3.1 Symbolology > Artifacts	
Cultural Element Definition.	<p>The tangible objects that carry a special meaning for a culture.</p> <p>The <i>tangible objects of a culture</i> include the everyday items, materials, and images that embody common themes and ideologies from within that culture. Also included are any tangible objects that appear at special occasions like celebrations and funerals.</p>
General Examples.	flags, silverware, pottery, musical instruments, clothing, accessories, the crucifix
Intent.	<i>Artifacts</i> ensures that the content displayed to the user includes artifacts relevant to their culture. The artifacts will occasionally be used—when appropriate—to convey information flows.
In-practice Examples.	<p>Be aware that several artifacts can be used to represent the same meaning. The choice will depend on the intended audience.</p> <ol style="list-style-type: none"> 1. Certain images on buttons that redirect to other windows may be representations of artifacts (i.e., popular foods or kitchen tools) to intuitively direct screen flows. 2. Images of gatherings and celebrations depict foods commonly enjoyed by Hispanic culture (e.g., chiles, corn, beans, squash) [consider SH]. 3. Images of food being prepared show the appropriate cookware for that food in that culture [consider SH]. 4. Religious presence can be achieved using cartoon angels, candles with the Virgin Mary, a crucifix, depictions of Jesus or saints [consider AR]. 5. The use of pre-Columbian pyramids or the Aztec sun for historic relevance in certain Hispanic holidays.

Fig. 3.3.4: Artifacts Table

One significant entry in the table that the user should pay attention to is the “*In-practice Examples*” row. This provides culture-specific examples for the user to better understand how the user interface mapping is achieved.

For this example, Pedro and Rosa determined that the Artifacts cultural element is more suited for the task.

3. After the user gains a better understanding of *Artifacts* by reading the definition and examples, they can begin to look at the cultural element manifestations.
4. The cultural element manifestations for *Artifacts* are listed just below the table (shown above) which the user is free to explore:

3.1.1 Symbolology > Artifacts > Key Elements of Culture

UI Mapping. Within the user interface, the following is true when displaying **images or videos** to the user: **tangible objects of a culture are found within the image.**

3.1.2 Symbolology > Artifacts > Relatable Representations

UI Mapping. When **images or videos** are applied on website content, it is true that the **objects depicted in the image** are **portrayed in the appropriate environment and in the appropriate manner pertaining to the culture.**

3.1.3 Symbolology > Artifacts > Images on Control Flow Elements

UI Mapping. When **images are applied on or as interface buttons:** they **depict a tangible object of the culture** whose **purpose can be visually recognized and properly associated with the functionality of the button.**

Fig. 3.3.5: Artifacts CE Manifestations

6. *Relatable Representations* seem to be the most appropriate for what Pedro and Rosa are trying to accomplish.
7. Moreover, Pedro and Rosa are interested in having depictions of religion; however. They believe that they should use different depictions to better appeal to children and adults. In the above scenario, the message that Pedro and Rosa are trying to convey may change based on age.

CEFIS can consider the above scenario by introducing the concept of *Cultural Element Modifier*. Modifiers are used when the message conveyed may change based on the age, educational level, and economic status of the targeted population. (Refer to *Overview > Cultural Element Modifiers in CEFIS documentation*).

Pedro and Rosa should read the In-Practice examples that provide some context on how to showcase religion based on age range. In-Practice example 4 outlines how religious presence can be achieved by listing a few examples such as cartoon angels or a crucifix.

8. Pedro and Rosa may apply the mapping for the *Relatable Representations* manifestation twice, one for children and one for adults.

For children, Pedro and Rosa can depict angels as cartoons (this was suggested in the In-Practice examples) within videos or images aimed at children. For instance, cartoon-style angel illustrations should be vibrant, friendly, and non-intimidating. If the user is expected to be a child user, then these illustrations can be incorporated into any part of the user interface pertaining to religion. Additionally, videos should be screened beforehand to make sure that they adhere to this format.

For older adults, Pedro and Rosa can include a crucifix (i.e., a tangible object of culture) in any image pertaining to religion. For instance, crucifix imagery should be of high-quality, respectful, and should adhere to religious conventions. If the user is expected to be an adult user, then these depictions can be incorporated into any part of the user interface pertaining to religion. Additionally, videos should be screened beforehand to make sure that they adhere to this format.

9. If they can modify these components of their website's user interface, then they have partially incorporated *Artifacts* into their website.

As mentioned earlier, there is no need to try and incorporate every single aspect of culture. The needs of the community, target culture, type of work, and application domain of the information system should guide which elements of culture are most relevant to the IS/web site of interest.

However, it's more likely that religion via the cultural element of Artifacts will be satisfied as more manifestations are mapped to the information system.

References

- [1] E. T. Hall, *Beyond Culture*. Knopf Doubleday Publishing Group, 1976.
- [2] A. L. Kroeber and C. Kluckhohn, "Culture: a critical review of concepts and definitions," Pap. Peabody Mus. Archaeol. Ethnol. Harv. Univ., vol. 47, no. 1, pp. viii, 223–viii, 223, 1952.
- [3] G. Hofstede, *Culture's Consequences: International Differences in Work-Related Values*. SAGE, 1984.