Cerence
# UX Services

Helping Automakers Deliver Powerful and Compelling User Experiences

Cerence, the global leader in mobility assistants, draws on decades of expertise to deliver in-car experiences that will drive user adoption, engagement and loyalty for car makers

UX is one of the most important acceptance criteria for the end user – this is what creates customer acceptance and good or bad reactions. Good UX design in automotive multimedia systems leads to good user satisfaction and can influence the overall perception of the product's quality and reliability. That means that overall quality/reliability measures (like J.D. Power ratings) can be influenced by starting with good usability in speech systems. Furthermore, UX Services at Cerence provide customers even more specific feedback on their speech systems. These services can discover deep pains and gains of the current as well as of future systems and identify reasons and recommended improvements to better position the system and, with that, the whole product in the market. These findings ultimately help to better sell the product. Finally, good UX is a driving factor to keep users loyal to products and brands. High system usability in today's automotive markets can greatly differentiate your offering from competitors.

What can you expect from Cerence UX Validation Services?
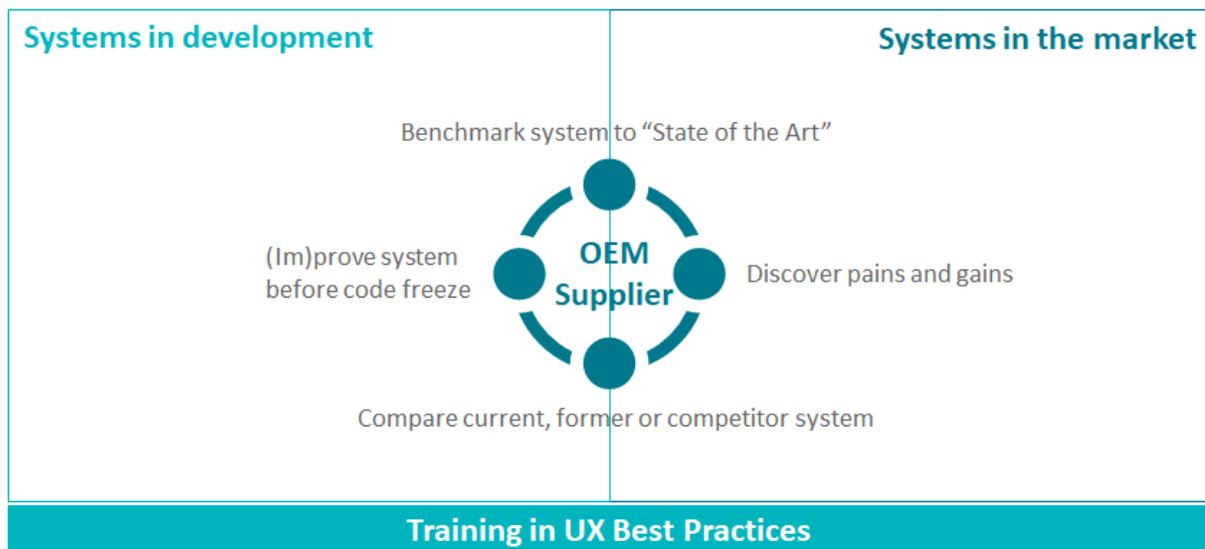
Why should you collaborate with Cerence?

Cerence brings more than 20 years of experience in UX design and UI dialog development for speech dialog systems. With an interdisciplinary team of software engineers, developers, UI engineers, psychologists and UX specialists, Cerence owns a deep understanding of both, developing good core technology and how this technology can be best integrated in the automotive in line with user expectations. This is what creates good feelings and fun using our systems on end user side. UX and UI at Cerence work very close together and therefore deliver the best dialog speech result from both perspectives. Due to numerous relationships and projects with automotive OEM customers, Cerence understands both end user needs and OEM UX requirements very well.

Services overview

UX Design Review

Native Speaker Test

UX Expert Review

Usability Test

End User Interviews

UX Trainings

End User Data Analytics

Conducted with internal UX and UI experts

Conducted with external end users

UX Design Review

The UX Design Review assesses general dialog design principles and specific system dialog flows within a product development and before start of implementation. Three to five UX and UI experts together review dialog flow and design for one ASR language (English or German). The resulting UX Design Review report contains findings and recommendations for improvements regarding design and dialog flow.

Benefits to the customer:

+ Great value at reasonable cost and time effort on early stage of development and before implementation
+ Recommendations help to avoid unnecessary or counterintuitive dialog development
+ Less refinement during development due to early evaluations

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UX Expert Review

The UX Expert Review can be conducted within product development after Feature Complete (before Code Freeze) or for a system in the market. It evaluates the perceived usability of implemented features and domains with the help of a standardized UX review checklist and with a focus on predefined usability criteria. The Review is conducted by three to five UX and UI experts for one ASR language (English or German). The resulting UX Expert Review report contains findings, design ratings of each tested domain and recommendations for improvements for those domains according to the tested use cases.

Benefits to the customer:

+ Great value at reasonable cost and time effort on early stage of development
+ Immediate results and improvements for development team
+ Great coverage of all implemented domains to be tested
+ Avoid unintuitive or incomprehensible dialogs before SOP

Native Speaker Test

Native Speaker Tests validate the localization quality of each implemented language and evaluate related speech-controlled texts and commands. The Tests are usually conducted with one native per language. The resulting excel test sheet per language contains ok (passed)/not ok test cases and, if not ok, related issues found during the tests (e.g. pronunciation, localization issues).

Benefits to the customer:

+ Predefined test cases ensure comparability and consistency
+ Great coverage of major languages and use cases
+ Feedback from actual users for further system development
+ Can be conducted at different phases of development to evaluate localization improvements

Usability Test

The Usability Test evaluates new, innovative features during the development. It focuses on the degree that a specific feature or domain is in line with expected usability criteria from user perspective. Usability tests can also be conducted for a system in the market. Furthermore, usability tests can be conducted to compare two systems (e.g. system compared to competitor or former system compared to current system). Usability tests are conducted with 10 to 15 end users for one ASR language (English or German). The resulting test report contains quantitative and qualitative findings on the usability of a preselected domain or feature and, if two systems are compared, on quantitative and qualitative findings of the comparison.

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Benefits to the customer:

+ Predefined test cases ensure comparability and consistency of results

+ Get first results on the acceptance of the innovative feature and avoid "flops"

+ Detailed insights for a specific feature regarding perceived customer value

+ Feedback from actual end users to refine the system during development

+ If two systems are compared, easily benchmark a system against a competitor or their own, former system

End User Interviews

End User Interviews evaluate the user acceptance of an implemented system (e.g. right after SOP). The results can be used for future improvements or as a UX benchmark. 10 to 15 end users, recruited by the customer, are interviewed about their satisfaction with the system regarding specific domains and related pains/gains, as well as their overall system acceptance. The resulting interview report (contains qualitative and quantitative findings on the user's system acceptance and recommended system improvements for a good user-system-interaction in the future (e.g. for future developments).

Benefits to the customer:

+ Detailed feedback on system acceptance from the field

+ System-user-interaction evaluated by real end users

+ Guiding direction for current and future user needs

End User Data Analytics

With the End User Data Analytics service, existing customer data from servers for up to 200 end users is categorized to major/key issues of a system in the market. It also verifies customer complaints and delivers recommendations for improvement to the customer. The resulting report contains the categorized complaints, highlighting the major issues in a graphic overview. In this way, key pain issues are easily detected and recommendations for future improvement can be derived.

Benefits to the customer:

+ Speech experts analyze speech issues

+ Development team gets direct feedback from the field

+ Customer gets support in analyzing field data and a clear overview of key issues

+ Easy and fast way to categorize main issues and derive recommendations for future improvements

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UX Trainings

The UX training is focused on best practices of past Cerence projects as well as general UX best practices and offers the customer a two-day training in best-in-class UX, with many practical exercises in how to transfer UX knowledge into reality and how to handle UX challenges. The training can be adapted to customer needs or to a special scope. It is offered for a minimum of five and up to 10 attendees per training and delivers a handout/documentation for each participant at the end of the training.

Benefits to the customer:

+   Learn best UX practices from several years of speech development expertise

+   Training can be adapted to customer needs/experience

+   Hands-on experience from real past and current projects

Standard and extended packages

The seven modules in Cerence UX Services can be offered individually or combined into standard/extended packages. Depending on the UX scope and product phase (in development or in the market), Cerence UX Validation Services recommends combining specific modules into packages to ensure a higher quality and/or quantity of information to the customer, with alignment to the customer's focus. The packages are described in the following:

For systems in development

Standard package for DIY/FB CDFW projects

For DIY/FB CDFW projects, we recommend:

+   1 UX Design Review before implementation

+   1 UX Expert Review after a feature complete stage

This ensures that dialog flow and general design of the system are evaluated before implementation to avoid unnecessary refinement during development, and to ensure that, once a system is feature complete, its domains and features are reviewed with focus on usability from the user's perspective. At this stage, improvement recommendations can still be considered, and the system will be in line with user expectations at SOP.

Standard package for CDFW dialog projects

For CDFW dialog projects, we recommend:

+   1 UX Design Review before implementation

+   2 UX Expert Reviews, one after feature complete and one when the system is bug-free

+   Native Speaker Tests with at least one native per language for all implemented languages

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This ensures that, like for DIY/FB CDFW projects, dialog flow and general design of the system are evaluated before implementation, to avoid unnecessary refinement during development, and to ensure that, once a system is feature complete, its domains and features are reviewed with focus on usability from the user's perspective. At this stage, improvement recommendations can still be considered, and the system will be in line with user expectations at SOP. With the help of Native Speaker Tests, the localization quality for all implemented languages can be evaluated and verifies that the system works properly for all intended countries and languages from the user's understanding of good localization before SOP.

New Technology and Innovative Features

To examine the usability of a novel feature or technology, we recommend:

+ 1 Usability Test for this innovative feature/technology

In this case, the innovation is reviewed with the help of real end users and from usability perspective because this affects the later degree of technology acceptance. If the test shows that the innovation is not yet feasible, recommended improvements can be taken into account during the development and before SOP.

For systems in development or systems in the market

Extended package: System usability assessment

If a system evaluation takes place focusing on usability but will cover more than one specific feature or domain, we recommend combining:

+ 1 UX Expert Review either after Feature Complete or after SOP (depending on product phase)
+ 1 Usability Test either after Feature Complete or after SOP (depending on product phase)

This ensures that all domains and features are reviewed by internal UX and UI experts and that recommended improvements can be delivered still before Code Freeze or, if done after SOP, within the development/fresh up of the next system generation. The usability test additionally supports usability pros and cons found during the review by specifically focusing on those key factors with end users. In this case, findings are supported by a greater sample and with internal *and* external users. Additionally, usability issues can be better specified and more detailed information on the system's usability can be provided.

This assessment can also be used as a comparison tool – current to former, future or competitor system – by including:

+ 2 UX Expert Reviews, one for each system
+ 2 Usability Tests, one for each system

With the help of this additional review and usability test, the second system can be reviewed and tested in comparison to the first system so that advantages and disadvantages of each system can be highlighted. The customer can then directly benchmark the own system in comparison to a former

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model, next generation, state-of-the-art or a competitor. By comparing the current and future generation systems, major issues detected in the first system can be improved in the next generation, and past errors can be avoided.

For systems in the market

Extended package: System acceptance evaluation

If the focus is on usability *and* overall system acceptance, and real end users can be provided by the customer, it is recommended to combine:

+ 1 Usability Test
+ End User Interviews for 10 to 15 end users

Combining both services helps to better understand end user feedback found in the interviews, as it can be further evaluated with the help of target-oriented usability testing. With this method, sometimes unspecific interview acceptance feedback can be supported by more specific usability results derived from the test, which gives the customer a more detailed and qualitative analysis of the collected interview data.

CONTACT

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