



Connected Home Readiness and Maturity Assessment

By leveraging an assessment framework, communication service providers can validate their connected home strategy, identify their readiness and maturity levels and pinpoint areas of improvement to inform and achieve business success.

Executive Summary

Throughout the past few years, communication service providers (CSPs) have offered connected home services with mixed success. CSPs that fell short of their objectives are interested in knowing what it would take to improve their competitive stature while those that have established some traction want to know what it would take for them to get to the next level. Answering these questions is not trivial and requires CSPs to reconsider timing, scale and capabilities decisions that pivot around market entry and expansion. The importance and magnitude of these decisions prompt a detailed analysis in the form of a CSP connected home readiness/maturity assessment.

A connected home readiness/maturity assessment will enable CSPs to identify gaps between their current and future desired states and pave the way for developing or acquiring capabilities to be successful in the multibillion-dollar connected home market. We recognize that CSPs are well versed in market entry and expansion, and have launched many new services and expanded into new geographies. However, CSPs continue to see vast discrepancies between anticipated and actual rates of adoption of connected home services, sometimes up to an order of magnitude.

Some CSPs, in fact, have scaled back their connected home services, while some have exited the market to reposition their offerings. It is evident that connected home services require different value propositions, sales, field services and customer care capabilities due to their high degree of complexity, which arises from the multitude of products, solutions and industry segments involved. Despite these challenges, CSPs are excited about the connected home as the underlying technology is maturing and consumers are more inclined toward using these services. It is imperative that CSPs be prepared to capitalize on this opportunity. The costs of miscalculation can be significant and might potentially change a CSP's fortunes for several years.

The connected home readiness/maturity assessment is a tangible starting point for CSPs to validate their approach to the connected home and eventually create solutions that are consistent with market opportunities, customer needs and CSPs' own capabilities. This white paper offers a sound approach to help CSPs identify their readiness and current levels of maturity with the help of an assessment framework that spans five dimensions: segmentation, customer education, organizational capabilities, platform strategy and interoperability. The assessment will provide recommendations that will guide them to the next level.

Five Dimensions of Connected Home Readiness/Maturity Assessment

A comprehensive connected home readiness/maturity framework assessment should evaluate CSPs on product/service offerings, market-facing factors and internal capabilities. The following factors span these three areas and are particularly important predictors of CSP success in the connected home space:

- **Segmentation:** CSPs that segment the connected home market based on customer needs, usage situations and activity chains – rather than observable customer characteristics such as demographic factors and purchase channels or industry segments – are, in our experience, much more likely to succeed. When specific customer outcomes can be articulated (e.g., peace of mind for a home security customer), connected home solutions transcend industry and product boundaries. By understanding customer expectations, CSPs will be in a better position to capture the customer’s total experience and grow their services by adding activities to the primary activity chain as well as to adjacent activity chains. For instance: If peace of mind is a primary utility for a home security customer, enabling customers to control household appliances will result in additional insights (such as convenience) to inform primary connected home activity chains.

By extending connected home services beyond the home and staying connected with the digital lives of customers (e.g., connected cars), CSPs can add connected home services in adjacent activity chains. The rich data source that surrounds customers and smart devices

provides insights into the processes in which interactions take place between customers and smart devices, and empowers CSPs with unprecedented value. We call this Code Halo™ thinking.¹ The result: a CSP connected home service portfolio that is aligned with customer needs and to which customers can relate.

- **Customer education:** CSPs that can demystify the connected home for their customers by focusing on making lives easier and better – and apply new technology and services to deliver on this promise – are likely to succeed. The connected home market includes various types of smart devices as well as connected home services. CSPs that provide clarity on the

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type of smart devices, levels of automation, convenience, economy, safety and channels to acquire (based on particular customer needs) are also more likely to succeed. CSPs that act on the customer Code Halo can increase the stickiness of their customers with personalized messaging and information gained over time and be more successful than those that do not tailor the message to suit different sets of customers.

Such CSPs are well-positioned to generate traction from existing relationships with their customers and can promote their ability to professionally install and offer customized service offerings (tiered packages to full-featured offerings). This is essential as the connected home market is relatively new, consumer familiarity and brand awareness on connected home devices and services is low and competition is fierce, spanning not only rival CSPs but security services providers, technology giants such as Google and Apple, national retail chains and even utilities companies.

- **Organizational capabilities:** Organizational capability is a critical factor, and it will determine CSP success in offering connected home services. CSPs that excel at internal enablement of capabilities and prepare the organization for offering, provisioning, delivering and



managing connected home services are more likely to succeed. Additionally, CSPs that trade on the symbiotic nature of the connected home business and build alliances with OEMs, platform providers and industry verticals such as healthcare, media and entertainment and utilities to leverage each other's complementary assets are more likely to succeed than those with a "do-it-all" approach.

CSPs with autonomous connected home business units are more likely to succeed because of the speed and high priority with which they can respond to market requirements that remain in flux. CSPs that have forecasted bandwidth usage and demand on mobile and fiber networks from an increase in connected home applications and related high-definition audio and video streaming have a better chance of succeeding as they leverage their core asset (i.e., network infrastructure) to scale services to millions of users. In addition to core assets, complementary assets such as strong marketing capabilities, a focused and trained sales force, field technicians and customer care representatives are even more important because CSPs must ensure that their connected home services are compelling in a new and rapidly changing market.

- **Platform strategy:** CSPs that enable customers to access, control and manage all smart devices from a single platform are also likely to succeed. Such CSPs are likely to adopt open standards, leverage open integration architectures and offer loosely coupled interfaces. These CSPs benefit from speedier software implementations, and have the ability to make changes easily and scale quickly. CSPs that may want to have greater control can take these open platforms in house and build an additional layer of customization, and still have the ability to integrate seamlessly.

CSPs that not only offer their own connected home solutions but also integrate solutions developed externally and enable the connected digital life of their customers are likely to do better at attracting and retaining customers. Such CSPs provide their customers the freedom to pick and choose rather than restricting them to a home and life equipped with devices from a single or handful of OEMs.

- **Interoperability:** CSPs that can enable communication among their customers' existing smart devices, but also with smart devices that customers may procure in the future and

bring together all smart devices and networks are most likely to succeed. Connected home devices use a variety of access technologies (e.g., mobile, fixed, wifi, Zig-Bee, Z-Wave) and platforms (e.g., IFTTT, Temboo, The Thing System, Wink, SmartThings, Zonoff). CSPs that can integrate heterogeneous products and brands will play a greater role in the everyday lives of their customers. Interoperability influences not only first-time purchase decisions, but also repeat buyers, changing consumer attitudes from "nice to have" to "must have." CSPs that leverage interoperability as a competitive advantage are more likely to succeed.

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Evaluating CSPs' Connected Home Readiness/Maturity

Based on how CSPs perform on the aforementioned five dimensions, they can be categorized into one of the four following levels of maturity:

- **Developing:** This level is characteristic of CSPs that are beginning to recognize the need to be part of the connected home market. The connected home is an exploratory area and peripheral to a CSP's strategy. Its focus on the connected home space is at a tactical and operational level at best. This CSP has an ad hoc approach to the connected home.
- **Functioning:** This level is characteristic of CSPs that aspire to and have committed to develop successful connected home solutions. Some elements of effective formal planning at regular intervals are in place that produce mixed results and success.
- **Performing:** This level is characteristic of CSPs that have aligned tactical and operational activities to their connected home vision and strategy. The CSP has not only established baseline processes, but also measures and improves them periodically.

- **Excelling:** CSPs at this level are market leaders in the connected home market, with a sound connected home strategy and inimitable advantages. These CSPs have not only mastered the fundamental factors of connected home but also have plans, goals and policies that protect their position in the complex and competitive connected home market.

Connected Home Readiness/Maturity Assessment Approach

A systematic approach and a framework will be beneficial for evaluating CSP connected home readiness (for new entrants)/maturity (for incumbents). An effective framework will span three key phases: discover, analyze and recommend. The connected home readiness/maturity assessment framework is depicted in Figure 1.

Key focus areas/activities that must be measured in each phase of the assessment include the following:

Discover

- **Segmentation:** This phase helps identify the criteria, bases, characteristics and key drivers that CSPs rely on to segment the connected home market. Additionally, the phase should

provide insight on how CSPs identify connected home use cases and design unique propositions for different segments.

- **Customer education:** Customer education will play a significant role in mainstream adoption of connected home services. In order to understand how CSPs are increasing awareness on the availability of connected home services and benefits, it would be essential to identify the various channels CSPs use to reach out to their potential and existing connected home customers, and the frequency and context in which such interactions take place.
- **Organizational capabilities:** In order to understand how CSPs bring together their resources and capabilities to accomplish their connected home vision and strategy, it is crucial to understand CSPs' strengths, challenges, constraints and success criteria.
- **Platform strategy:** A CSP's connected home platform should maximize the number of smart devices it can recognize and communicate with. The focus of this phase should be to understand whether the CSP leans toward open standards or relies on a proprietary platform to efficiently support various types of smart devices.

Ready, Set, Connect

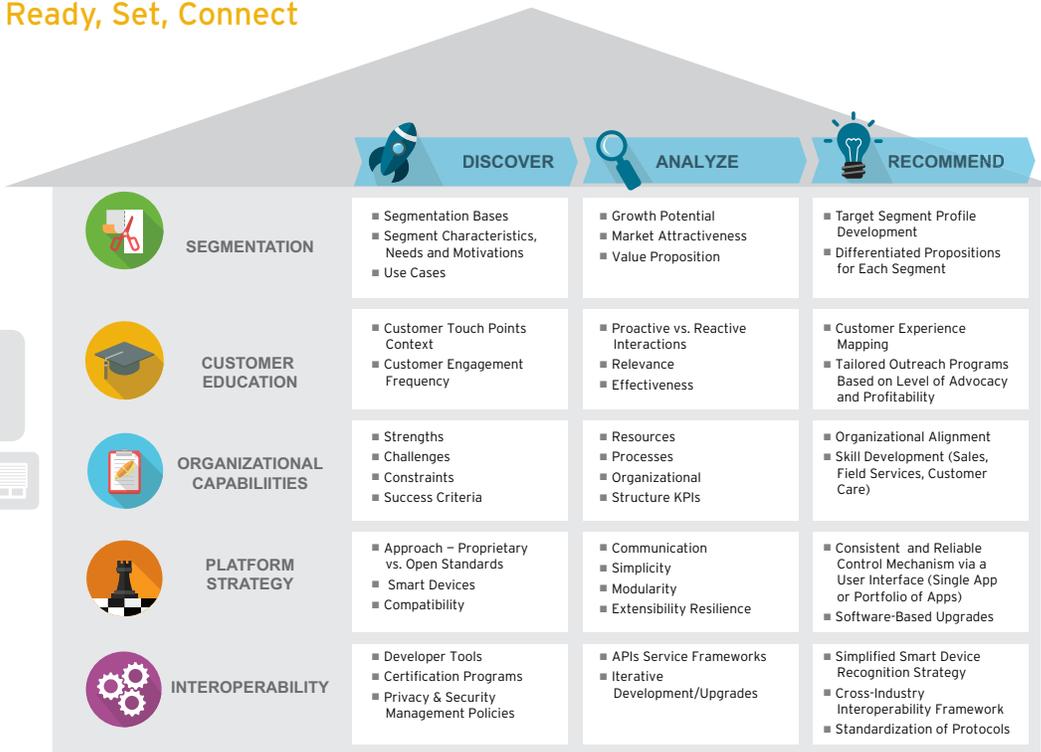


Figure 1

- **Interoperability:** In order to increase value and drive mass adoption of connected home services, interoperability will be a critical factor. The focus should be on the developer tools, certification programs and privacy and security management policies that CSPs have established in order to create an extensible ecosystem.

Analyze

- **Segmentation:** Post identification of the segmentation criteria and characteristics of various segments, the focus should be to assess the growth potential and attractiveness of each segment and analyze the relevance of the needs and value proposition for each segment.
- **Customer education:** The focus here should be to understand the CSP's connected home customer education strategy and analyze the mix of proactive and reactive interactions (i.e., interactions initiated by the CSP to educate the customer vs. interactions initiated by customers to seek resolution of issues with connected home services), relevance and the timing and effectiveness of customer interactions.
- **Organizational capabilities:** Successful connected home product and service offerings will need a range of resources (e.g., network bandwidth for supporting high-definition audio and video streaming from connected home applications), skilled sales, field services and customer support teams and management capabilities (ability to drive change) to handle changes to existing business processes as well as the creation of new ones. This phase of the assessment should focus on understanding how CSPs enable these capabilities.
- **Platform strategy:** As the connected home market develops, the choice of smart devices will increase, and tweaking each device to work with the platform may not be truly efficient. The focus here would be to assess the CSP's connected home platform on its ability to simplify communication, provide modular features, incrementally add capabilities and deliver a reliable and consistent connected home experience.
- **Interoperability:** Lack of compatibility among devices will force consumers to restrict themselves to smart devices from a single OEM or juggle more than one system. CSPs that are enabled with APIs, frameworks and the ability to iteratively develop new services regardless

of the heterogeneity prevalent in the connected home market can drive greater interoperability. The focus here should be to analyze the CSP on these parameters.

Recommend

- **Segmentation:** As connected home solutions transcend industry boundaries, the recommendations would include the development of target market profiles and the design of differentiated propositions for each segment.
- **Customer education:** To go beyond early adopters, CSPs have to focus on educating customers and better understanding customers by mapping their experiences. Recommendations should include grouping customers based on their levels of advocacy (or technological affinity) and profitability to help prioritize customer education initiatives. Additional recommendations should comprise customer onboarding programs, simplifying set-up of connected home services for customers, empowering customers with self-service portals and creating tailored outreach programs.
- **Organizational capabilities:** Recommendations should include organizational alignment that help CSPs overcome obstacles and ensure enablement of capabilities within the organization as well as externally with suppliers and partners. Additional recommendations should include development of trainings for groups such as sales, customer care and field technicians who frequently interact with customers while delivering connected home services.
- **Platform strategy:** If the CSP's connected home services have to scale up, it will have to provide a platform that will support various smart devices from different brands. Recommendations should include best practices on control mechanisms to manage various connected home functions, plus software-based services to enhance platform value over time.
- **Interoperability:** Recommendations would include simplification of device recognition, development of a cross-industry/sector interoperability framework that would drive standardization of protocols for communication among smart devices.

With this framework, CSPs will be able to better understand the connected home opportunity, prioritize their connected home product/service market offerings, ensure alignment of their

assets and capabilities with current and future needs and measure against key connected home success factors.

Questionnaire and Scoring Methodology

To apply the framework and determine the readiness/maturity level of a CSP, a question-

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naire and scorecard is required. What follows is a snapshot view of the questionnaire. The snapshot spans the five dimensions of assessment and includes high level guidelines on evaluating responses.

Segmentation

- **How does the CSP position its connected home offering?**
 - A CSP that positions its connected home solutions to address situations requiring solutions that transcend industry boundaries and clearly communicates the value proposition is likely to score higher than one that targets customers based primarily on demographic information.

Customer Education

- **What is the CSP's approach to educating its connected home customers?**
 - A CSP that customizes its messaging based on customers' technological affinity and enthusiasm, and places an appropriate amount of functionality into its service (and does not intimidate customers) will receive high marks in this category.
 - A CSP that also ensures that customer education does not end at the point of sale, but continues into the post-sales cycle and empowers its customers by educating them on how they can include additional devices, troubleshoot and seek assistance from various channels, will emerge at the top. A CSP that lacks such an approach will receive a lower score.

Organizational Capabilities

- **How is the connected home group organized and how does it fit in the overall organization structure?**
 - A CSP that scores high on this parameter will have a separate business unit for connected home with sound interdepartmental relationships as well as strong external connections with partners and suppliers to bolster its portfolio of connected home solutions. A CSP in which the connected home is still an exploratory area and is part of an existing line of business – and thus lacks the agility to swiftly move in a rapidly evolving connected home market – is likely to receive a lower score.

Platform Strategy

- **How does the CSP differentiate its smart home platform from those of others?**
 - A CSP with a flexible connected home platform (device-agnostic and workable with a variety of radio protocols) and which enables customers to control various smart devices from a single app or a portfolio of apps will score well here. The CSP with a connected home platform that has been coded to work with only a subset of smart devices will score low here.

Interoperability

- **How does the CSP address the challenge of deploying interoperable solutions?**
 - A CSP that recognizes the need for interoperability to drive mass-market adoption of connected home solutions and as a result adopts open standards, develops solutions that can be easily integrated with new smart devices, works toward driving industry-wide standardization of protocols and technologies and empowers customers with the freedom to choose their smart devices will emerge with the highest score. On the other hand, a CSP that relies on a proprietary solution that limits integration with smart devices will receive lower marks.

Our questionnaire responses are used to identify CSP connected home readiness/maturity level. Responses are scored on a linear scale of 1-4 to minimize any element of subjectivity (1 indicates least readiness/maturity and 4 indicates highest readiness/maturity). Any unanswered questions will receive a score of 0. The scorecard provides CSP readiness/maturity level for each dimension

listed above, as well as an overall readiness/maturity level. Using this scorecard, CSPs are placed into one of the four categories – developing, functioning, performing or excelling – as described above.

Figure 2 details key attributes that qualify CSPs on the five dimensions of assessment and four levels of maturity.

Levels of CSP Maturity Across Five Key Connected-Home Dimensions

	DEVELOPING	FUNCTIONING	PERFORMING	EXCELLING
 SEGMENTATION	CSP is evaluating segments for viability and market attractiveness.	CSP is prioritizing and establishing partnerships across industry segments to deliver connected home services.	Connected home offerings span industry segments. However, disparities need to be addressed to ensure that service delivery and management are seamless.	CSP's connected home services transcend industry boundaries. CSP has partnerships across industry segments with capabilities to deliver seamless and integrated services.
 CUSTOMER EDUCATION	CSP does not have a proactive approach to educate customers; instead, it relies on the notion that familiarity with connected home devices and services will increase over time.	CSP recognizes the need to tackle the problem of lack of perceived value of connected home services, and thus to educate customers on understanding the benefits of connected home services.	CSP is focusing on communicating novelty of benefits and convincing customers to buy services that they have lived without, as well as upgrade existing customers.	With a well-defined value proposition, CSP ensures that customers realize true value of services, creates loyalty and drives repeat purchases. It has simplified set-up process, established customer engagement across various touch points and proactively addressed security and privacy concerns.
 ORGANIZATIONAL CAPABILITIES	Connected home group operates as an individual silo. CSP's ad hoc and static approach to connected home produces inconsistent results, and CSP lacks formal structure and champions to sustain momentum of connected home programs.	Ad hoc collaboration to deliver connected home solutions. CSP recognizes the importance of inter-departmental collaboration. Service level agreements are mostly at "best effort." It needs to enhance skills and capabilities in order to expand connected home offerings.	More sophisticated interdepartmental collaboration is the rule: CSP is working on establishing competitive service level agreements (e.g., mean time to provision, activate, install, repair, disconnect, replace) with connected home customers. Formal training programs are under development to upskill personnel working in connected home group.	Collaborative interdepartmental relationships with integrative skills are standard. CSP has established industry-leading service level agreements (mean time to provision, activate, install, repair, disconnect, replace) for connected home services. Formal training and knowledge management processes are used to sharpen connected home delivery skills and competencies.
 PLATFORM STRATEGY	CSP relies on a proprietary platform to deliver connected home services and offers limited device choice.	CSP recognizes the need to adopt open standards and integrate connected home solutions developed externally to drive mass adoption of connected home solutions.	CSP has begun to embrace open standards by opening its platform to OEMs and third-party vendors. It is leveraging OSS/BSS to provide value-added services.	CSP has a reliable, scalable, open platform and architecture with the ability to adapt to changing technological requirements and standards. Connected home platform is well integrated with OSS/BSS and CRM systems.
 INTEROPERABILITY	CSP is trying to overcome technological obstacles imposed by lack of an ecosystem and standards.	CSP recognizes the importance of interoperability as the number of smart devices continue to increase as well as the need to simplify installation and management. Development and certification process challenges prevent the CSP from meeting launch dates, occasionally.	CSP can cope with the lack of standards by focusing on interoperable solutions. It optimizes certification processes and timelines for connected home devices on its network.	CSP's highly available, secure and interoperable connected home solutions support heterogeneous connected home products and services from OEMs that use various protocols and access technologies. Its mature certification process for connected home devices and solutions reduces time-to-market.

Figure 2

Need, Benefits of a Connected Home Readiness/Maturity Assessment

The connected home is an evolving marketplace. New products and services are likely to be introduced by companies that want to test the waters and better understand customer interest and demand. CSPs will be challenged not only by traditional rivals but also by players in adjacent industries. Such dynamics could result in disconnects between actions taken by CSPs and desired outcomes.

Some segments of the connected home market, such as utilities and home health, are highly regulated; CSPs will have to comply not only with Federal Communications Commission guidelines but also with the regulatory bodies of the sectors in which they operate. When it comes to the home security segment of the connected home market, CSPs also need to be aware of and prepare for liabilities in relevant adjacent industries. CSPs must also address concerns on security, privacy and data breaching among connected home customers. As a result, entering/expanding connected home offerings can be a complex and an expensive process. Moreover, CSPs are likely to encounter major but surmountable challenges.

A connected home readiness/maturity assessment will identify areas that could undermine a CSP's effort, and will help it to take proactive actions to avoid expensive failures and inform success. Our readiness/maturity assessment will also enable CSPs to validate and refine their connected home strategies and business goals, and pave the way for a clearer translation of their connected home vision into tactical and operational activities. CSPs will benefit from evaluating critical internal and external processes, and from baselining performance measures against key success factors and best practices.

Looking Ahead: Moving to the Next Level

Post identification of the CSP's readiness/maturity level, it is important to recognize next steps that the CSP must take to move to a higher level of maturity. The next steps vary from one CSP to another, and depend on where the CSP fits on the maturity model. A CSP that has the first-mover advantage will have a different set of next

steps from one that is still considering entering the market or considering merely repositioning its existing connected home offerings.

For instance: If a CSP's maturity level has been identified as "developing," this CSP is likely to be in an exploratory phase of the connected home market. Such a CSP is concerned about expansion to related products and services. A CSP in this position should focus on firming up which connected home services to offer and which segments it should serve, and ensuring that it can deliver value to its customers relative to cost. A CSP at this stage will also have to make choices on what not to do and the associated trade-offs. At a tactical level, the CSP must fundamentally understand the organizational impact such as the development or acquisition of skills.

On the other hand, a CSP with a maturity level of "performing" should focus on operational effectiveness by establishing and embracing best practices across the value chain and functional areas. Once it achieves operational effectiveness, the CSP should pursue steps to differentiate and provide unique value to its customers to reach the "excelling" state. Quickly attaining this status will ensure that operational effectiveness and best practices are achieved before competitors get there.

As noted, it is paramount for CSPs to validate their connected home strategies since the connected home will play an important role in new CSP offerings as traditional revenue streams continue to shrink. The connected home is evolving, and moving market opportunities often demand that CSPs periodically revisit their strategies that were based on once-dominant positions.

Our connected home readiness and maturity assessment framework offers a way for CSPs to empower themselves to uncover strategic and functional gaps in their connected home approaches and to manage the unique set of circumstances they encounter. When the assessment is transparently applied (i.e., avoiding cognitive biases), it will pave the way for setting realizable objectives, undertaking essential course corrections and developing insights into services that will enable future growth.

Footnote

- ¹ A Code Halo is a Cognizant-coined metaphor that symbolizes the digital information that surrounds people, organizations, processes and things. For more on this topic, see *Code Halos: How the Digital Lives of People, Things, and Organizations are Changing the Rules of Business*, by Malcolm Frank, Paul Roehrig and Ben Pring, published by John Wiley & Sons, March 2014, <http://as.wiley.com/WileyCDA/WileyTitle/productCd-1118862074.html>.

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