FORT BENNING

CASE STUDY

Bringing the operational digital transformation of
Fort Benning's Installation of the Future into focus with
Intelligent Building's actionable strategic consulting.

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Overview

Fort Benning (Ft. Benning) and the Maneuver Center of Excellence created an initiative to define an Installation of the Future (IotF) for the U.S. Army that would modernize facility-related infrastructure and leverage current day technology to increase operational resiliency and reduce risks. A working group of ten (10) participating stakeholder groups produced a list of 144 existing operational issues at the base and corresponding utopian solutions. However, without an applicable process to navigate this complex operational digital transformation, a unified vision for the IotF remained out of reach, and the initiative stalled. Ft. Benning engaged Intelligent Buildings, LLC (IB) to provide their actionable strategic consulting services to facilitate the development of the IotF pilot program. Following IB's Strategic Planning Methodology, IB aligned the disparate stakeholder groups by capturing their shared IotF themes, which IB used to identify the goals, outcomes, and capabilities of the IotF initiative. With a shared vision in place, IB incorporated Use Cases in the process to bring consistency and structure to the proposed IotF functionalities. This work enabled the IotF working group to evaluate and discuss Use Cases, culminating in a final list of twenty-one (21) Use Cases. IB then facilitated selecting the planned Use Cases and implementation sites for the pilot program by providing evaluation frameworks for the IotF group to make informed decisions. IB's actionable strategic consulting services enabled the IotF working group to develop an achievable IotF proposal and actionable delivery plan for a pilot program, which Ft. Benning submitted to the U.S. Army for review.

EXECUTIVE SUMMARY

Building profile
- **Organization:** Fort Benning and the Maneuver Center of Excellence
- **Location:** Columbus, GA
- **Strategic objective:** Create an Actionable Delivery Plan for the Installation of the Future (IotF)

Challenge
- Align the ten (10) disparate stakeholder groups in the IotF working group to converge on an achievable vision for the IotF initiative and create an actionable pilot program proposal

Solution
- Leverage Intelligent Building, LLC (IB)'s Strategic Planning Methodology to build structure into the pilot program development process
- After the Discovery and Alignment processes, IB identified an initial scope of work and developed a Digital Platform Strategy that is inclusive of the ten (10) stakeholder groups' visions for the IotF to provide a common language to discuss and evaluate IotF ideas
- Incorporate Use Case structure to formalize potential IotF functionalities for straightforward evaluation and prioritization
- Develop a framework for assessing the Use Case Catalog for pilot readiness and required system investment value to determine the planned Use Cases for the pilot program
- Provide an assessment of potential onsite buildings' readiness to support and benefit from the planned Use Cases
- Provide a high-level actionable initiative proposal for the pilot program to facilitate the development of the IotF proposal
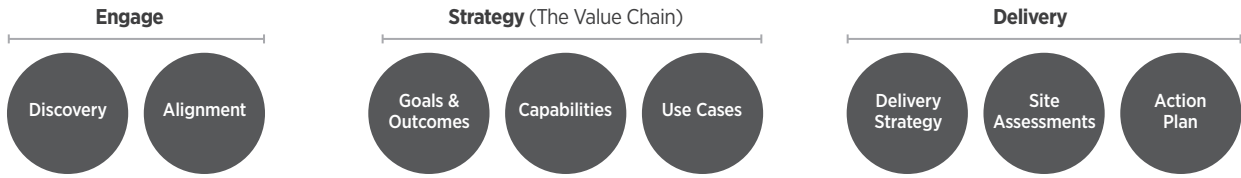
Intelligent Buildings Services
- Actionable Strategic Consulting
- Smart Building Design Guidance

Benefits
- The ability for the IotF working group to converge on an achievable vision for the IotF with goals and outcomes, capabilities, and Use Cases
- The ability to make strategic implementation decisions for the pilot program through planned Use Cases and site assessments
- A detailed, actionable plan for the IotF pilot program

The Strategic Planning Methodology

Engage — Discovery, Alignment
Strategy (The Value Chain) — Goals & Outcomes, Capabilities, Use Cases
Delivery — Delivery Strategy, Site Assessments, Action Plan

Characterizing the Installation of the Future at Fort Benning

Ft. Benning—and its Maneuver Center of Excellence—is a U.S. Army installation located outside of Columbus, GA that maintains a community of over 120,000 active-duty military, family members, employees, and others. As one of the largest military installations in the U.S., Ft. Benning has many moving pieces in its everyday operations. For each aspect of the installation to run effectively, stakeholders continuously rely on data sharing across systems. This data sharing was never built into the initial systems and processes, and therefore, the Army experiences inefficiencies from one-time and repetitive manual processes. The IotF's goal was to begin streamlining these processes and leverage the evolution of technology to remove these operational barriers, improve the resiliency, and reduce the operational risk of running the installation.

These challenges led Ft. Benning to explore technology solutions for its operational bottlenecks and the creation of a working group tasked with defining the IotF. As part of Installation Management Command (IMCOM)'s broader Smart and Resilient Installation program, the IotF aimed to further data integration across an installation to improve interoffice and inter-directorate operations and make accessing garrison services simpler for soldiers and families. To ensure that the resulting strategies would benefit the entire installation, the IotF working group included representatives from ten (10) stakeholder groups across Ft. Benning's operations, such as the garrison command, housing services, and logistics operations.

The IotF group began meeting to explore issues and solutions the IotF could address. Over time, the IotF working group created a list of 144 general operational problems and conceptual utopian solutions, which encompassed a multitude of objectives, technological capabilities, and potential supporting systems. Without a shared vision for Ft. Benning's operational digital transformation to the IotF, these initial problem-solution pairs were unfocused and lacked a framework to evaluate how they supported the IotF goals or could be strategically implemented to maximize value. Finding itself at an impasse, the IotF group contracted IB to lead the strategic planning of this operational digital transformation with their actionable strategic consulting services to facilitate the journey to creating an Actionable Implementation Plan for the IotF.

Engage

The Strategic Planning Methodology contains three (3) stages required to develop an actionable initiative proposal for an operational digital transformation successfully: Engage, Design, and Delivery. During the Engage stage, IB begins the process of Discovery and Alignment by working with the customer to build off existing structures and progress and align stakeholders, regardless of the current status of their operational digital transformation initiative. As part of these processes, stakeholders are educated on critical elements of their operational digital transformation initiative to align their work with the Strategic Planning Methodology.

Discovery

In this process, IB gains an understanding of the overall organization and stated operational digital transformation initiative objectives, the motivating business needs, and any operational constraints. Additionally, Discovery captures each stakeholder's role and current state, the challenges they face in executing their responsibilities, and the capabilities they are looking for from technology in the operational digital transformation initiative.

Alignment

Alignment starts with IB identifying stakeholder themes revealed in Discovery, such as the future state capabilities desired from the operational digital transformation and organizing the subsequent processes. It can also include accounting for stakeholder impact or involvement within the initiative. Importantly, the Alignment process aims to establish a common language and understanding of the operational digital transformation initiative within the organization. This process involves broadening viewpoints to find global (rather than local) solutions by identifying commonalities and economies of scale in technology solutions, as well as articulating the real organizational and operational constraints.

Actionable Strategic Consulting

The challenges of digital transformations

Digital transformations, or the development of new solutions with digital technology that redefine existing business processes, are complex initiatives that require careful planning to succeed. Digital transformations leverage technologies to automate and expand the capabilities of networks, such as Internet of Things (IoT) devices, cloud-based collaboration tools, or analytics tools that unify multiple sources of data. Digital transformations connect information silos, creating a network with vast, measurable data points. Digital transformations also fundamentally change business processes, such as Human Resources, training, software development, or building systems. Through digitalization, new system capabilities require new performance metrics, team workflows, and employee skills—all of which must be aligned with the overarching business needs for a digital transformation to succeed.

Because a digital transformation is a uniquely complex process for most organizations, it is often oversimplified and approached as a standard process enhancement, akin to upgrading current software versions. This simplification allows leaders to put their focus into the promise of new technological capabilities while not fully accounting for existing business needs or subsequent change management requirements ultimately dooming many digital transformations. Conversely, without a comprehensive delivery strategy, digital transformations can compromise an organization's processes, resources, and stakeholders. Overwhelmed organizations stall or delay their digital transformation, risking their relevance and competitive advantage in a market that demands the efficiencies and capabilities that digitalization delivers.

Developing actionable strategic consulting to improve operational digital transformations

The development of a Smart Building is fundamentally an operational digital transformation. Through data unification, Smart Buildings break down information silos across building systems while delivering new capabilities that redefine an organization's success metrics for its operational technologies (OT) and require new workflows and skills to operate. Additionally, evolving technologies like Building Internet of Things (BIoT) enablement hardware and big data and cloud-based analytics continue to revolutionize the business value of Smart Buildings with novel operational solutions. The combined global market for the BIoT is expected to total $84.2 billion by 2022. With over more than a decade of working with customers to develop Smart Building solutions, IB expanded and formalized its actionable strategic consulting services to help organizations strategically plan and implement their operational digital transformations with minimal risk.

Strategy (The Value Chain)

The goal of the second stage, Design, is for IB and the organization to work together and systematically design the operational digital transformation.

Goals and Outcomes

The first step in designing an operational digital transformation is to identify the business goals that drive the initiative and its desired outcomes. Through the actionable strategic consulting services, these high-level goals prioritize business needs and define which of these needs will be in scope throughout the operational digital transformation initiative. With the strategic goals set, the Goals and Outcomes process incorporates the underlying business needs driving the operational digital transformation into outcomes that will increase the organization's competitiveness. As a result, defining outcomes calls for both aspirational and achievable language in an agreed upon and shared lexicon among stakeholders. No matter the overall scope, well-defined goals and outcomes provide high-level boundaries that facilitate the operational digital transformation initiative's progress through the Strategic Planning Methodology. Finally, as most operational digital transformations are too broad to define or execute immediately, the current scope of work, which must be specific, achievable, and provide a technology foundation to integrate future needs, is selected from the broader set of goals. The relationship between the desired outcomes and the current scope of work informs the definition of the current objectives. Combined, the current scope of work objectives are the artifact for the Goals and Outcomes process.

Capabilities

Many organizations struggle with a multitude of variables and potential pathways for an operational digital transformation initiative after deciding to digitize operational business processes. Even with the scope of work objectives clarified, there is still a myriad of technology pathways to meet the objective and achieve the operational digital transformation outcomes. Defining the capabilities of an operational digital transformation's digital platform strategy solidifies the technological path for the initiative. In many operational digital transformations, the overall concept may be too broad to characterize the entire set of capabilities accurately.

Actionable strategic consulting services follow a Strategic Planning Methodology comprised of several iterative processes facilitated by IB. These services bring focus to an organization's desired outcomes by shaping strategy and planning efforts into manageable artifacts as specificity increases with each step of the process. This process ensures the operational digital transformation initiative efforts work toward achievable goals and gain feedback quickly from phased implementation while ensuring that each step strategically builds a foundation for subsequent actions. Through actionable strategic consulting services, IB partners with customers to determine the necessary framework and implementation strategies.

Actionable Strategic Consulting Services at Ft. Benning

Identifying the goals, outcomes, and capabilities of the IotF by engaging in Discovery and Alignment processes

As part of its actionable strategic consulting services, IB followed the proven Strategic Planning Methodology to define Ft. Benning's operational digital transformation initiative and design an Action Plan. IB began its work with Ft. Benning's IotF working group with the Discovery and Alignment engagement processes.

In the Discovery process, IB reviewed the IotF group's existing work, including the 144 identified operational problems and their utopian solutions. IB recognized these problem and solution pairs did not focus on achieving common organizational goals or realizing a specific set of beneficial outcomes. Additionally, elements of the utopian solutions included broad language that created ambiguity in the functionalities that would enable the solution. Without a framework to translate day-to-day operational bottlenecks experienced by the IotF stakeholders into goals, outcomes, and capabilities, there was no pathway to consolidate the original problem-solution pairs. Furthermore, IB worked with the Garrison Command to understand the organizational objectives of the IotF initiative and together identified Warfighter Readiness, Resilient Installations, Initial Maneuver Platform, and Cost-Effectiveness as the goals and outcomes of the IotF.

Through the Alignment process, IB identified five (5) common IotF capability themes voiced across the ten (10) stakeholder groups:

- People counting / tracking
- Asset management
- Incident and event response
- Streamlined notifications
- Automated data collection

Based on these capability themes and the goals and outcomes defined in the Discovery process, IB proposed an initial objective to develop and adopt a Smart+Connected facility-centric approach and provide an extensible platform to integrate current and future capabilities of the IotF. This objective enabled all of the collective capability themes to support the operational digital transformation goal.

IB then defined the digital platform strategy that would support the IotF capabilities with converged technology solutions that connect existing data silos. The platform strategy, termed the Smart+Connected base, created a focused, shared understanding and common language for the IotF with two (2) strategic capabilities:

- **Smart:** the ability to collect, visualize, share, and analyze data that informs decisions, resulting in increased operational efficiency or enhanced occupant experiences

- **Connected:** implementing and operating an integrated infrastructure and technical ecosystem that facilitates the deployment of smart solutions

Figure 2. The Smart Building Platform
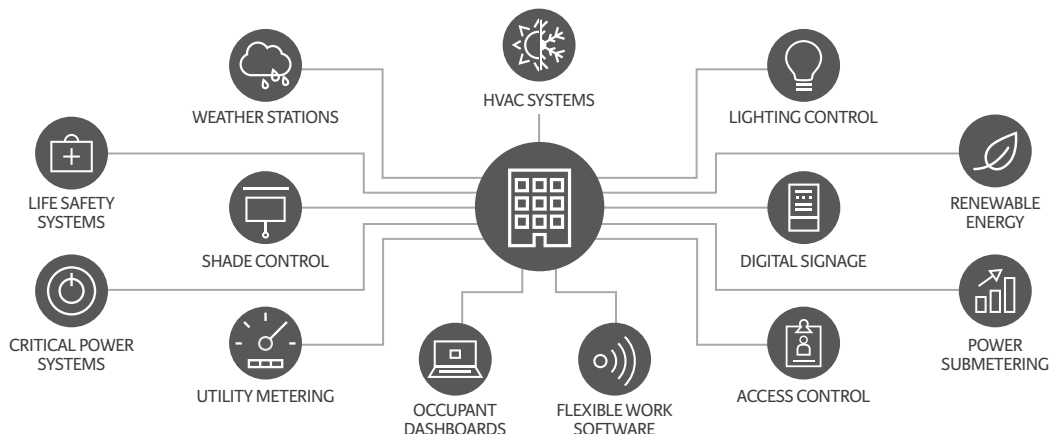
The digital platform strategy details expanded beyond the strategic capabilities to capture how the strategy would build from the goals, outcomes, current objectives, and capabilities. The initiative could then focus on a longer-term time horizon required to realize an operational digital transformation. The additional digital platform strategy details included:

1 Platform attributes that would enable the central beneficial outcomes of the initial effort's scope of work

2 Guiding principles that ensure the development of the initial effort's capabilities will positively impact the organization's operational digital transformation in specific areas

3 Market factors informing digital platform implementation strategies

4 Complications—technological, cultural, or otherwise—that could impede implementation

The Engage stage enabled IB to gather background on Ft. Benning's operational digital transformation initiative and complete the first iterations of the Goals and Outcomes and Capabilities processes. IB identified common operational bottlenecks across the disparate stakeholders to develop a digital platform strategy that aligned the IotF initiative to the Strategic Planning Methodology. With this shared vision of their operational digital transformation initiative, IB and the IotF group moved to the Use Case process and scheduled a four-day design charrette to develop the IotF Use Case Catalog.

Defining the Use Case Catalog at the IotF design charrette
The objective of the design charrette was to create a final list of focused, achievable Use Cases to include in the final IotF proposal. Over four (4) days, IB facilitated the IotF working group in developing Use Cases that were evaluated based on the digital platform strategy and current effort's objective, resulting initially in forty-six (46) potential Use Cases. The working group then prioritized and narrowed down the collection to twenty-one (21) for the Use Case Catalog. The design charrette successfully brought together the disparate stakeholder groups around a focused objective and digital platform strategy to discuss a Use Case structure to evaluate ideas.

In this case, IB facilitates identifying a manageable foundationa effort for the operational digital transformation. This discrete, workable unit is termed the foundational effort because it is structured to provide a platform for the integration of initial and future capabilities that will enable broader outcomes.

Whether characterizing the overall initiative or a foundational effort, the digital platform strategy defines the operational digital transformation's capabilities through the platform's attributes and benefits, guiding principles for the strategy, market factors for selecting a technology architecture, and complications impacting implementation.

Use Cases

The Use Case process further refines the definition of the operational digital transformation. Use Cases are solutions or functions that result in or support the operational digital transformation's capabilities. In an operational digital transformation, a Use Case is an interaction that typically utilizes information from multiple systems to add value to an organization or broader stakeholder group by enabling a new capability. Incorporating the Use Case framework maintains the focus of the operational digital transformation initiative on desired outcomes rather than a particular technology or solution. The artifact of this process through the actionable strategic consulting services is the Use Case Catalog, which is the minimum set of manageable Use Cases that support the capabilities defined for the current scope of work.

Delivery

The final stage in the Strategic Planning Methodology is for IB and the organization to use the operational digital transformation design to deliver an actionable proposal for implementation.

Delivery Strategy

Operational digital transformation implementations often use an iterative process to account for the inherent uncertainties in system, business process, and culture interactions. Iterations can provide new information that necessitates outcome, capability, and Use Case refinement, or reveal unaddressed knowledge gaps and change management requirements. Integrating these lessons into future implementation phases elevates the overall robustness of the operational digital transformation.

Creating a delivery strategy to determine the planned Use Cases for the pilot program

The Use Case Catalog added specific functionality to the vision of the IotF; however, the IotF group needed to deliver an Action Plan that would demonstrate the benefits and determined that the pilot program could only integrate three (3) Use Cases. To help the working group make an informed decision, IB created a framework to rank the pilot readiness of each Use Case. This framework included an aggregate rating of the pilot readiness to support each Use Case. This aggregate rating was a composite of six (6) Use Case attributes, including the cost, complexity, and time-to-value of the Use Case for the pilot. IB also provided a table of core systems—the systems Use Cases rely on to enable functionality—that the twenty-one (21) Use Cases required. This table provided decision-makers insight into which core systems would equip the most Use Cases. The combination of these two (2) metrics enabled the IotF group to understand which Use Cases would provide the most efficient performance value and which Use Case core system investment provided the most value across the Use Case Catalog.

Using this framework, IB suggested six (6) case studies, from which the IotF working group selected the final three (3) planned Use Cases that would govern the development of the pilot project:

- User-specific dashboard
- Building system analytics
- Schedule and occupancy-based HVAC control

> **"**
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> *This will allow us to use big data across multiple domains for decision making, to optimize monitoring and control of resources, and to provide real-time response to a dynamic environment.*
>
> – Tiffani Migliore,
> The garrison information management officer.[1]

Phase scoping begins with determining the number of planned Use Cases within each implementation phase that maintains an acceptable level of risk and can meet budget and timing requirements. The planned Use Cases to fill each implementation phase are selected based on the organization's readiness for adoption, the extensibility of supporting systems, and the availability of potential implementation sites.

Each phase may also be implemented gradually beginning with test cases or pilot programs to reduce risk or align with the organization's policies by providing performance data with minimal investment. These small-scale trials generally reduce the number of sites in the initial implementation to meet the organization's risk, investment, and timing criteria. The Delivery process results in planned Use Cases and the identification of potential sites.

Site Assessments

Implementation sites need to be finalized to realize the planned Use Cases. IB's Site Assessments evaluate each site's existing building systems and OT, including identifying components, communication networks and protocols, functionalities, and cybersecurity risks. IB then conducts a Gap Analysis that compares each site's current abilities to each planned Use Case's capabilities and the effort level required to close any capability gaps. The Site Assessments also evaluate the value of each Use Case. The combination of the gap and value analysis of each Use Case across potential sites enables the organization to prioritize and select sites for the planned Use Cases.

Action Plan

Action Plan, the final process, adds requirements and success metrics from each of the previous processes to create an actionable initiative proposal for the operational digital transformation. This proposal details the design of the operational digital transformation and its delivery, connecting how each process builds to introduce specificity in each step while maintaining a single, overarching initiative throughout the Strategic Planning Methodology. The actionable initiative proposal can inform decision makers throughout an organization and guide teams impacted by the operational digital transformation through the implementation process.

Conducting site assessments to select pilot program locations

After identifying the planned Use Cases, IB worked with the IotF group to choose the implementation sites for the pilot. The pilot project aimed to demonstrate the value of the three (3) planned Use Cases individually, as well as the validity of the entire Use Case Catalog that characterized the functionality of the IotF. IB provided Site Assessment services for the potential pilot building sites and conducted a building readiness Gap Analysis to support each of the planned Use Cases. In their assessment, IB also provided a site selection strategy to help minimize the cost and approvals required for the pilot and maximize the value of the pilot program's data. Using IB's analysis, the IotF group selected two (2) buildings with similar technology but different occupancy patterns and usage for the pilot program. The sites could also leverage each building's systems to support the Use Cases, avoiding approval requirements to develop a centralized building system. The pilot implementation sites would lay groundwork infrastructure and network capabilities that could be quickly scaled to include additional buildings, systems, or other data sources.

Delivering the IotF proposal with an Action Plan for the pilot program

As a part of developing an actionable initiative proposal, IB included a system summary of the two (2) buildings, an outline of the core system requirements, and the three (3) pilot Use Cases and integration points for existing building systems. Finally, IB suggested goals and key performance indicators for each Use Case, as well as a roadmap outlining milestone tasks required to prepare, execute, and measure the pilot program.

Through IB's actionable strategic consulting services, the IotF working group completed their proposal for the larger IotF initiative and developed an initial pilot program to be reviewed by theU.S. Army.

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References

1. USAG Fort Benning. (2018, June 18). Fort Benning seeks to move itself, all Army installations into future. Retrieved from https://www.army.mil/article/206739/fort_benning_seeks_to_move_itself_all_army_installations_into_future

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