



Innovating with Autodesk Consulting

Innovation is in our DNA

A trusted partner to leading firms



19 of the ENR Top 20
Design Firms



17 of the ENR Top 20
General Contractors



13 of the ENR Top 20
Environmental Firms

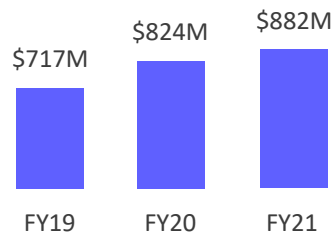


8 of the top 10 Automotive
companies



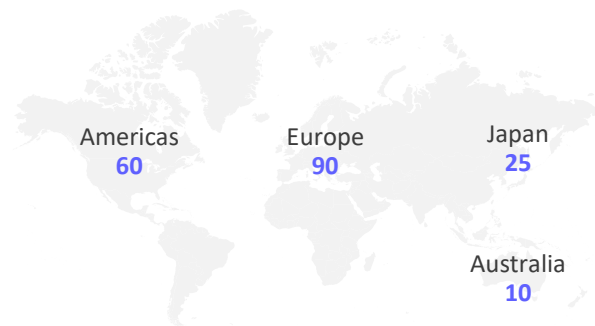
Autodesk has been recognized by Fast Company in its list of the **World's Most Innovative Companies**¹

Autodesk R&D Spend



Global Consulting Practice

- Data to Insights
- Platform for New Business
- Future of Work
- Sustainability
- Process Automation



¹. [The 10 Most Innovative Data Science Companies of 2020](#)



Innovation Areas

Autodesk Consulting is focused on developing innovative solutions in 5 key spaces



Data to Insights

Draw actionable insights with data analytics & machine learning

Properties
2.689
Bodies
0.00
Area
1763
Density
6.531
Mass
Alum
Volume
Alum
Physical
Appearance
► Bounding Box
Center of Mass -76
► Moment of Inertia at
► Moment of Inertia at

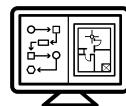
Example Use Cases



Model Insights

Manage model data & content quality

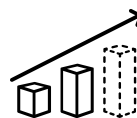
Improve quality and reliability, reduce errors and rework, improve forecast accuracy



Process Insights

Track metrics & optimize performance

Reduce non-value-add processes, manage complexity, optimize schedule duration



Business Insights

Make data-driven decisions

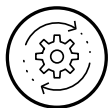
Increase revenue, maximize team resource utilization, improve win rate

BIM 360 Data Harvester

The Data Harvester connects cloud data in the BIM 360 platform to an enterprise system dashboards with near real-time automation.



Challenge: Connect BIM data to enterprise systems, balanced complexity with UI simplicity



Solution: Created innovative yet configurable data connection solution solving multiple use cases



Outcome: Mission critical data integration and visibility of large data sets in dashboards

“

The automated process saves us a significant amount of time ...data enables us to strategically prioritize our resources and solve problems quickly and efficiently over a wide variety of projects.

Design Practice Lead

Model Development Suite

Organizing all data across all projects, the Model Development Suite enables a common data environment with specification, management and checking tools



Challenge: Create standard information taxonomy for BIM



Solution: Starting small, looked for ways to normalize data standards. Through iterative and agile approach built a family of tools around data



Outcomes: Data interoperability and data hygiene, critical to efficiency & government regulations

“

We anticipate >£1m savings on each one, potentially even increasing as Highways England increases the complexity of information delivery on their projects.

Transportation Consultant



Platform for new business

Expand your products and services
using the Autodesk platform

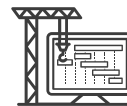
Example Use Cases



Digital Twin Services

Asset planning services for owners

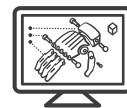
Reduce CAPEX, OPEX, maintenance, and replacement costs



Operational Services

In-house services for project teams

Improve operational efficiency, reduce non-value-add processes, manage complexity



Product Configuration Services

Configurable product catalogs

Enhance customer experience, diversify revenue streams, improve operational efficiency

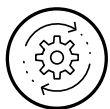
Success Story: JELD-WEN

[Read the full story](#)

JELD-WEN increases its online product display from 30% to 90% with a custom-built tool.



Challenge: Product required up to 120,000 assets that need to be generated manually, then need to be named, managed, uploaded to the cloud, and entered in a database



Solution: Custom Autodesk® Forge® configurator for web connects to products using Autodesk® Fusion 360®, managing relevant data and generating visualizations automatically



Outcome: 700 hours of time saved in the overall workflow for existing products; for new products, process was reduced from up to 10 weeks to a maximum of 3 weeks

“

Within our industry, no one else is doing this. It was a **pioneer project for us. That's why we partnered with Autodesk... Our customers love it. They love the fact that they can see the product online, which allows for more inspiration.**

Director of Digital Marketing

Success Story: National Oilwell Varco

[Read the full story](#)

“

No risks, no ambiguity, no emailing files - it's just **beautiful**.



Challenge

- Be able to start programming CAM projects as soon as a first draft of CAD is available
- Have a revision control over CAM and NC data
- Be able to deliver configured NC to the machine controllers



Solution

- Major and minor released states allow CAD to be released to programming early
- Vault used to configure CAD, CAM, and NC with traceability throughout
- Vault for MAKE allows DNC to network connected and RS232 machines



Outcome

- Elimination of wasted time waiting for files to open/save/close (estimated at 30% or engineer's time)
- Unproven and proven lifecycle states allows for full control and management of NC files
- NC file transfer to and from machines simplified into a single, standard user interface



Future of Work

Strengthen your resiliency with agile operating models

Example Use Cases



Adaptable Collaboration

Rapidly & seamlessly redeploy teams

Ensure business continuity, increase workload capacity, improve remote collaboration



Virtual Environments

Remote access to on-field asset data

Analyze real-time information and augment capacities with multi-sensory experiences



Health & Safety Protocols

Ai & robotics for safety checks

Ensure safety on the jobsite and factory floor, assess risk, and redirect resources

Success Story: Groupe Beneteau

[Read the full story](#)

Boat manufacturer Groupe Beneteau reduced scrappage costs to €0 and production time by 12%. They also minimized health and safety risks for their employees.



Challenge

- Reduce manual steps during manufacturing
- Reduce health and safety risks
- Simplify process to make onboarding new staff easier
- Provide operators time to perform other duties



Solution

- Automated integration with ERP and machine tool reduces “hands-on” time
- In-process probing removes the need to access the machine during the process
- Automated part alignment means staff do not need to learn CAM tools



Outcome

- Process reduced to six simple steps
- Manual measuring and finishing operations removed from process
- Machining time decreased by 12% per boat, unattended running time increased

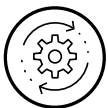
Success Story: AECOM

[Read the full story](#)

AECOM leverages BIM 360 Design to realize 20% time-savings on global collaboration.



Challenge: Collaborators were unable to access work via the project server, which required using a server at another location to share large files at project milestones.



Solution: Implementation of cloud-based environment that enabled teams to collaborate simultaneously on live models



Outcome: 20% improvement in production time for 8 work packages delivered in final 6 weeks of project



The adoption of BIM 360 Design on this project **simplified the workflow immensely** for external work-sharing, the old workflow of file handovers created a real risk to project deadlines. Having real-time access to the project status resulted in greater confidence across the project team.

BIM Manager



Sustainability

Ingrain sustainability into your
business processes



Example Use Cases



High Performance Buildings

Embedded Intelligence

Optimize a building's energy efficiency, durability, life-cycle performance and occupant productivity



Resilient, Smart Infrastructure & Cities

IOT, AI, 5G, blockchain

Develop roads, buildings, energy, and water infrastructure with due consideration to environment



Low-Waste Construction & Manufacturing

Digital prototyping, industrialized construction

Reduce material consumption and total carbon footprint

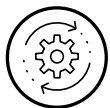
Success Story: Claudius Peters

[Read the full story](#)

With Autodesk® Fusion 360™, Claudius Peters re-designs key manufacturing part, reducing material by 25%.



Challenge: Reduce material used for concrete cooling equipment “Clinker Cooler”



Solution: Fusion 360 for digital prototyping to optimize key part of conveyor system based on constraints



Outcome: Generated part with 25% reduction in material used and improved structural integrity

“

...with Autodesk as a strong partner on our side, we achieved remarkable results and improvement on our innovation journey. We are convinced that if we continue our journey with partners like Autodesk, we will avoid extinction or disruption, and we will **stay competitive in the market.**

Chief Digital Officer and Operations Director

Success Story: Royal BAM Group

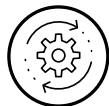
[Read the full story](#)

The Royal BAM Group saved up to 50% in material (resulting in a significant reduction in CO2), 60% of time on the jobsite, and 80% in labor, all while improving quality.



Challenge

- Up to 5 different are needed to program the robots
- Programming one toolpath takes two hours in average
- Non-working programs lead to repeated programming



Solution

- Using PowerMill with Robot Plugin as a single robot programming environment
- Fast toolpath calculation with dedicated additive strategies
- With robot simulation they have a true “what you see is what you get” solution



Outcome

- Average programming time reduced to 30 minutes per part
- Saving up to 50% on material resulting in a significant reduction in CO2
- Saving about 60% of time on the jobsite and 80% in labor
- Based on parametric models and proven production processes guarantee a constant quality



Process Automation

Improve your productivity through
process automation

Example Use Cases



Computational Design

Rule-based modeling

Automate repetitive tasks and decisions based on pre-defined parameters



Generative Design

Iterative, object-driven design

Explore multiple design options to determine the optimal solution



Machining Automation

Automated toolpaths & parts setup

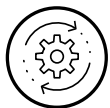
Reduce manual CNC programming operations for subtractive manufacturing and automate parts setup

CivilConnection

CivilConnection facilitates coordination between disciplines, using computational design to dynamically link buildings and civil infrastructure models.



Challenge: Model tunnels using BIM, coordinate between disciplines



Solution: Computational design solution allowing rapid coordination between Revit and Civil 3D



Outcomes: Radical efficiency gains, and a tool that was adopted by customers worldwide and the product team

“

The only way an engineering company can keep up with the requests on a 450km rail project is through **computational design, the model is just too big to rely on manual modeling.**

BIM Leader

Success Story: Panasonic

[Read the full story](#)

“ It was quite **remarkable**. Ultimately, we obtained smoothly contoured CAM data, fulfilling our goal of working with automated design.



Challenge

- Injection molding is essential to mass-producing plastic parts with complex shapes
- To create higher-quality products at lower costs, the priority has been to develop advanced cooling systems for melted materials
- It takes an experienced engineer around eight hours to design a mold



Solution

- Applied generative design to mold-cooling water channels for fan blades used in duct-ventilation systems
- Expert designer provided constraints for the fan blade's initial shape, a range of conditions for the water channels to be generated, and restrictions to prevent the channel paths from influencing the fine details of the molded product



Outcome

- Reduced cooling times by 20% compared to conventional methods, where channels are drilled straight through the mold
- Very little difference in performance between a mold using automatically generated cooling channels compared to the veteran engineer's design



Transformation Services

Advisory Services & Implementation Services



Supporting your digital transformation

Transformation Services

Transformation Services give you flexible access to the full-breadth of Autodesk's Consulting practice, from strategic advisors to technical implementation experts.



Direct

Work directly with Autodesk to co-solve today's biggest design & make challenges



Flexible

Draw from our global team with expertise across products, industries, and markets

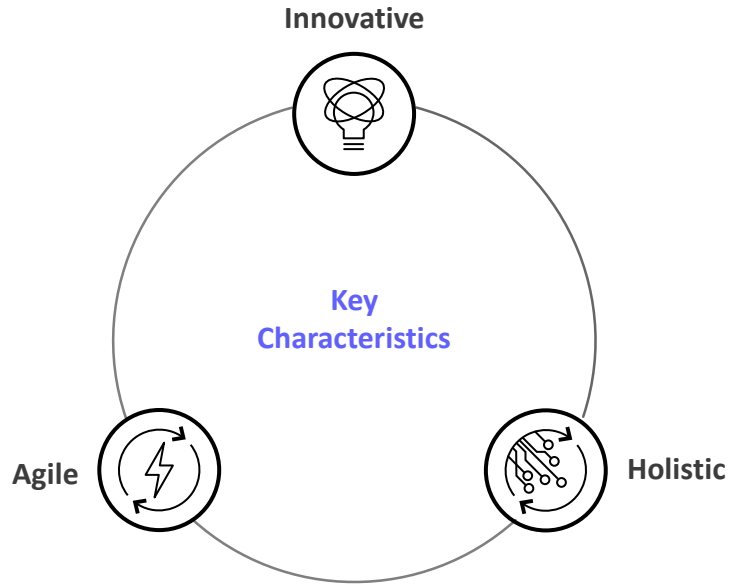


Easy

Easily schedule stand-ready consultants without amending or creating new contracts

Transformation Services

What kind of partnerships drive successful transformation?



**Our approach to
partnerships**

Advisory Services



Assess

Evaluate your current transformation strategy, processes, practices, and plans for implementation

Shape

Refine or define a strategy based on your business requirements and informed by Autodesk insight

Design

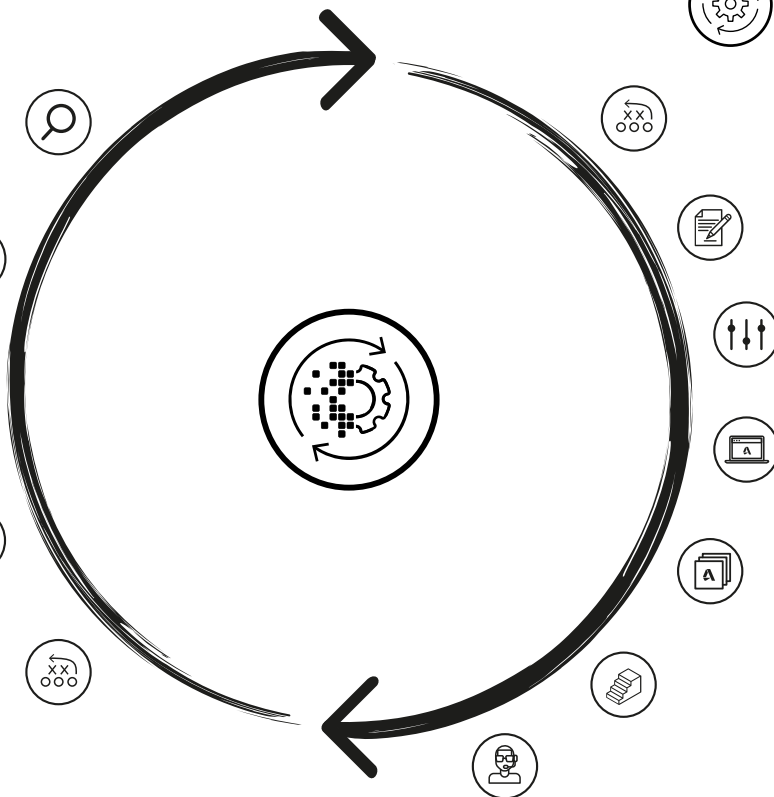
Define architecture from business, data, application, infrastructure, and integration perspectives

Validate*

Verify workflow automation, application integration, data connection, and API feasibility

Plan

Create a path to develop, integrate, and deploy the solution with visibility of key dependencies



Implementation Services



Plan

Schedule, budget, and plan implementation activities in detail

Define

Define and document solution processes and workflows

Configure

Adjust settings of standard software and configure content

Develop*¹

Sprint-based development using public APIs

Deploy

Install or upgrade Autodesk technology in the solution

Train

Train key users and project teams on the new solution

Support

Analyze and troubleshoot implementation related issues

*Not available for MAKE technology

¹Development environment only

20%

Reduced design time



[Read more](#)

25%

Reduced build time



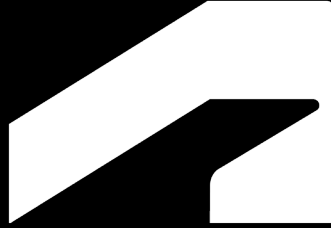
[Read more](#)

50%

Faster time to market



[Read more](#)



AUTODESK

Flexible Engagement Options

Resource Increments:

Purchase one or more in the following increments:

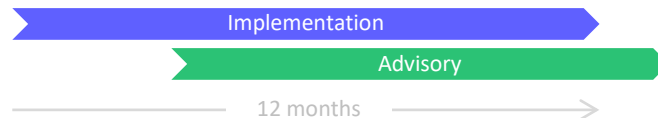
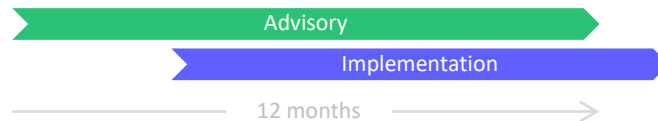


Advisory Services: 1/3rd full-time resource

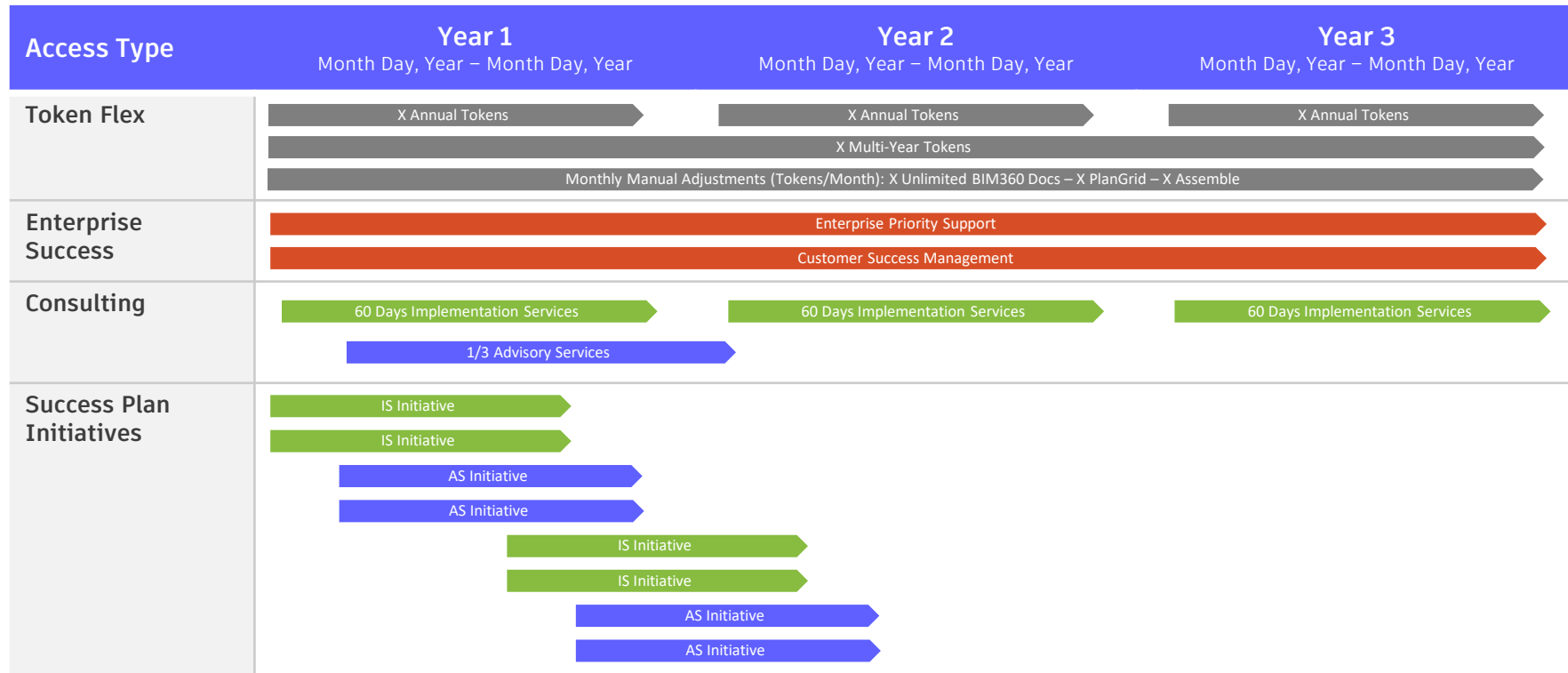


Implementation Services: 60 days

- 12-month terms
- Services do not need to coincide
- Includes Project Management & Travel Time



Example Enterprise Timeline



Transformation Services

Covered Technology*

Autodesk® 3DS Max®

Autodesk® Assemble Systems

Autodesk® AutoCAD®

Autodesk® AutoCAD® Civil 3D®

Autodesk® AutoCAD® Electrical

Autodesk® AutoCAD® Mechanical

Autodesk® BIM 360® Build®

Autodesk® BIM 360® Design

Autodesk® BIM 360® Field

Autodesk® BIM 360® Glue®

Autodesk® BIM 360® Plan®

Autodesk® BuildingConnected

Autodesk® Configurator 360™

Autodesk® Dynamo Studio

Autodesk® Fabrication CADmep™

Autodesk® Factory Design Utilities

Autodesk® Forge

Autodesk® FormIt® 360 Pro

Autodesk® Fusion 360™¹

Autodesk® Fusion Lifecycle™ Enterprise

Autodesk® Fusion Team

Autodesk® InfraWorks®

Autodesk® Inventor®

Autodesk® Inventor® Nesting

Autodesk® Inventor Tolerance Analysis

Autodesk® Simulation Moldflow® Insight Ultimate

Autodesk® Nastran®

Autodesk® Navisworks® Manage

Autodesk® Plan Grid

Autodesk® Point Layout

Autodesk® Recap 360™ Pro

Autodesk® Rendering

Autodesk® Revit®

Autodesk® Robot™ Structural Analysis Professional

Shotgun™

Autodesk® Vault Professional

Autodesk® Vehicle Tracking

Autodesk® Vehicle Tracking

Autodesk® VRED

1. Manufacturing Workspace is excluded from Advisory Services' Covered Technology.

* Additional Rider Needed for: Autodesk® FeatureCAM, Autodesk® NetFabb, Autodesk® PowerMill, Autodesk® PowerInspect, Autodesk® PowerShape, and Autodesk® Fusion 360 (Manufacturing Workspace)



Advisory Services

Assess

Evaluate your current transformation strategy, processes, practices, and plans for implementation

Shape

Refine or define a strategy based on your business requirements and informed by Autodesk insight

Design

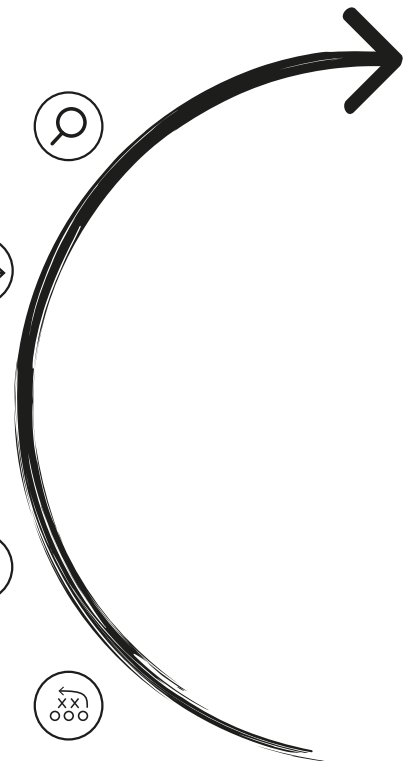
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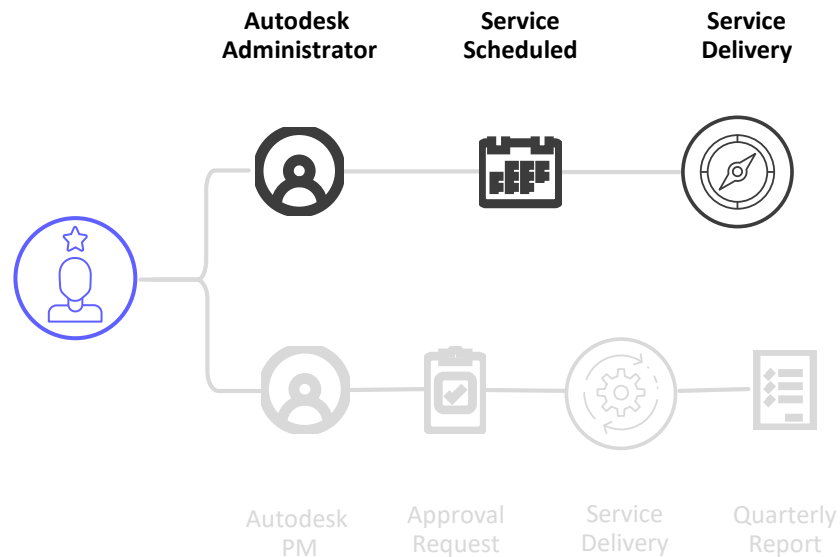
Create a path to develop, integrate, and deploy the solution with visibility of key dependencies





Advisory Services

How it works



Advisory Services

Delivery Framework

Key:



Activities with your sponsors



Activities with your business units

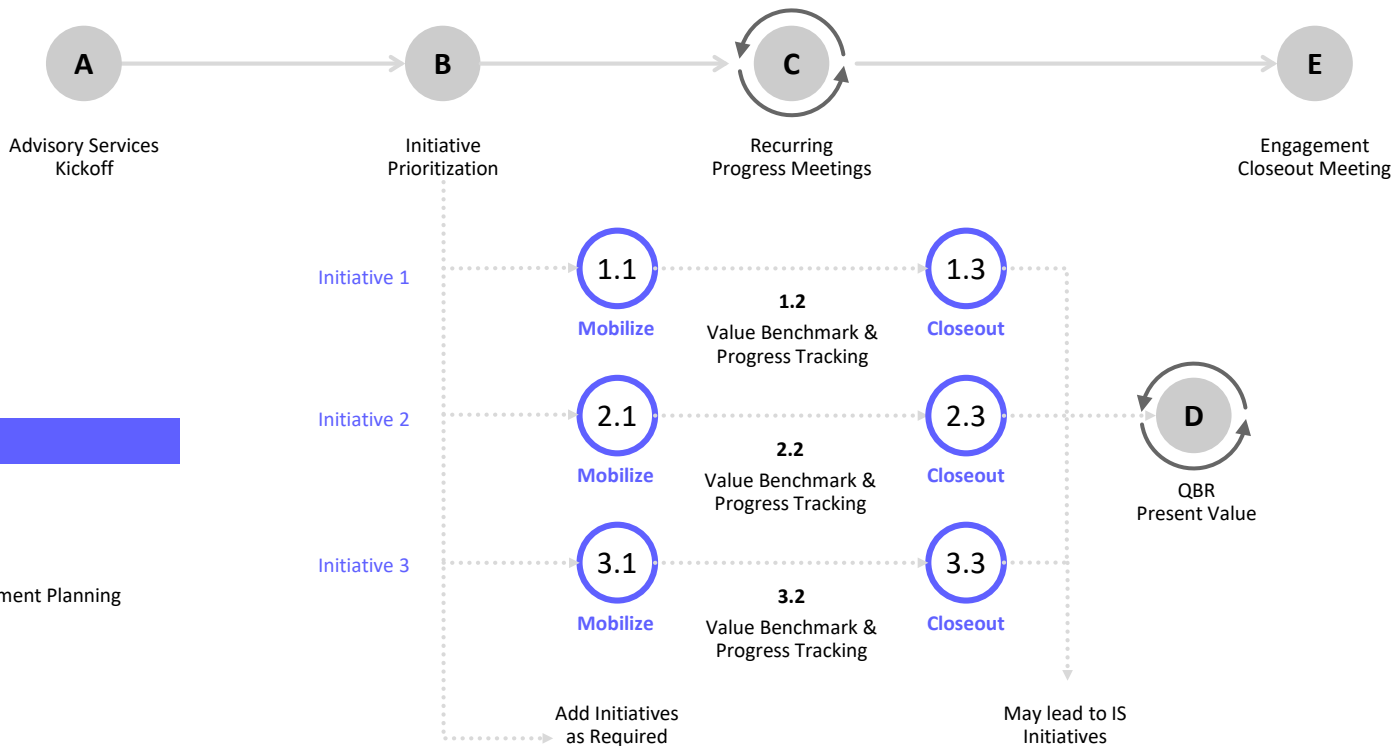


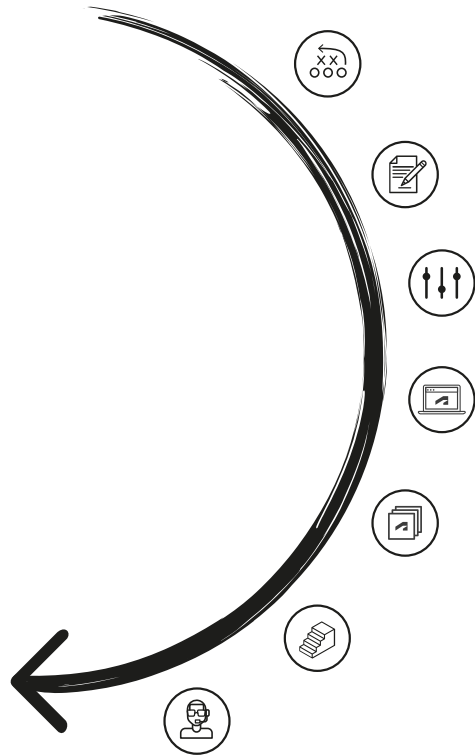
Recurring Activity

AS Service Categories

- Evaluations
- Strategy Definition
- Architecture Definition
- Architecture Feasibility
- Implementation & Deployment Planning

[Terms and Conditions →](#)





Plan

Schedule, budget, and plan implementation activities in detail

Define

Define and document solution processes and workflows

Configure

Adjust settings of standard software and configure content

Develop*¹

Sprint-based development using public APIs

Deploy

Install or upgrade Autodesk technology in the solution

Train

Train key users and project teams on the new solution

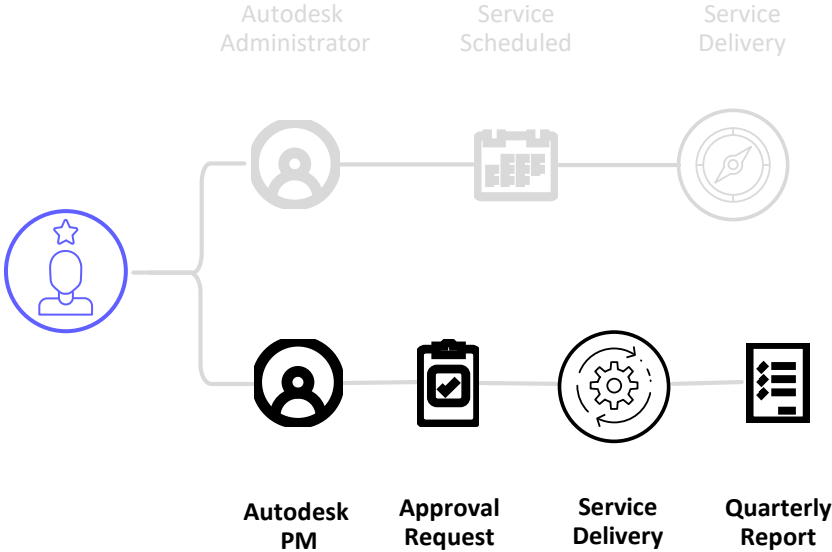
Support

Analyze and troubleshoot implementation related issues



Implementation Services

How it works



Implementation Services



Implementation Services

Delivery Framework

Key:



Activities with your sponsors



Activities with your business units

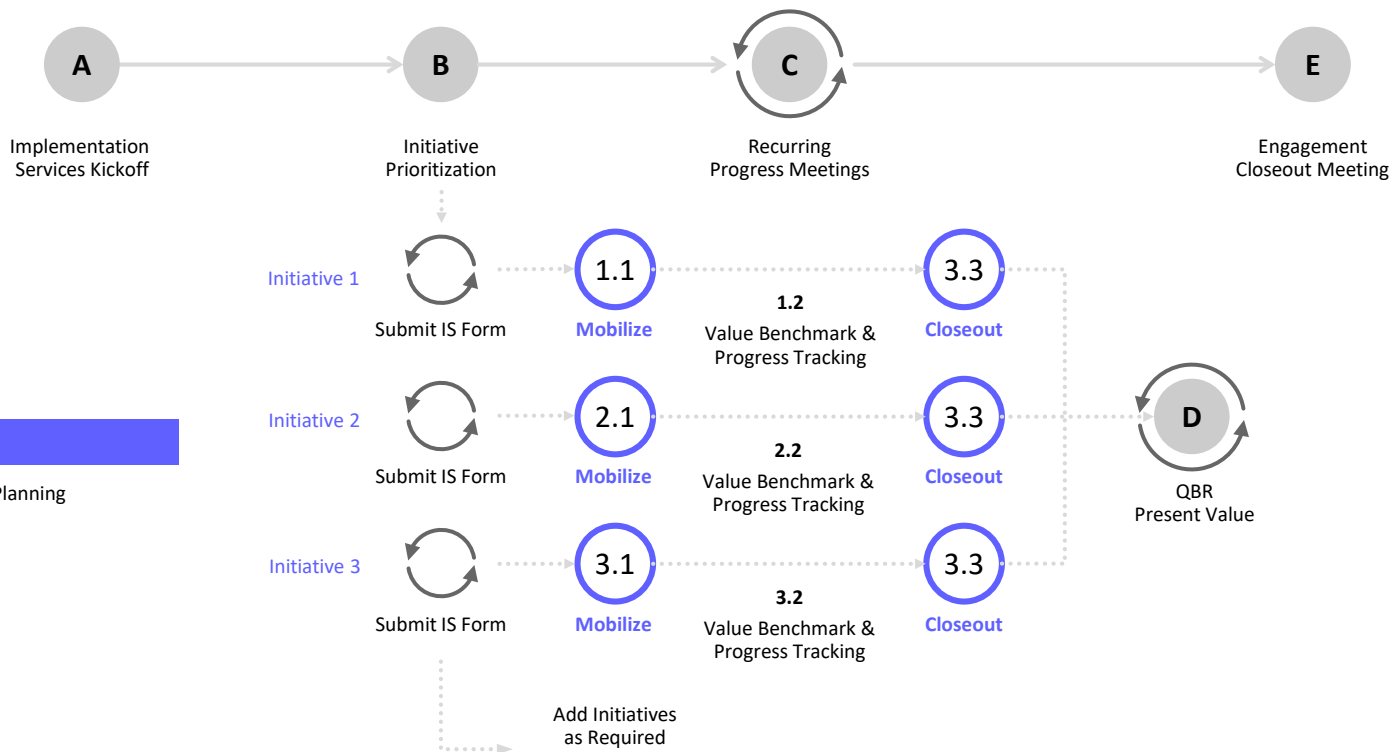


Recurring Activity

IS Service Categories

- Detailed Implementation Planning
- Technology Deployment
- Technology Configuration
- Content Configuration
- Process Definition
- Technology Training
- Implementation Support
- Software Development
- Application Definition

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Strategy Definition Workshop

A Strategy Definition Workshop is a collaborative workshop designed to enrich the strategy behind a new initiative or individual business unit with Autodesk domain acumen.

BENEFITS



Enhances strategic vision with industry perspective and domain expertise



Adds tactical measures to strategy with roadmap and timeline



Helps stakeholders understand the business requirements for achieving success



Helps inform change management strategy



Assists in guiding resource allocation



Accelerates decision-making



Provides clear KPIs for measuring success

Production Assurance Credits (PAC)



Pre-paid credits can be used for work extending beyond the bounds of Transformation Services, including but not limited to:



Delivering projects to a specification



Developing applications to specification



Supporting UAT & staging of custom applications



Deploying custom applications into a production environment



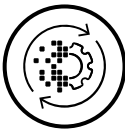
Delivering work outside the scope of Transformation Services

From Projects to Programs



PAC - Service Confirmation Order (SCOs)

- Prepaid credits purchased with EBA
- Custom scope and contract negotiation for each SCO
- Provide delivery guarantee for agreed upon deliverables



Transformation Services

- Stand-ready access to consulting
- Online scopes and fixed price at EBA level
- Simplified contracting at EBA level
- IS Forms for authorizing initiatives
- No deliverables to customer specs