EXTERNAL

2021

ABB Data Center Solutions

Speed to deployment

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Since 2010 internet users
worldwide have doubled

Market drivers

Since 2010…	Internet users worldwide have **doubled**	Global internet traffic has grown **12-fold** or 30% per year
Between Feb and mid-Apr 2020	Global internet traffic surged almost **40%**	Pandemic drove use of video streaming, video conferencing, online gaming and social networking
Future growth	Mobile internet users projected to increase from 3.8 billion in 2019 to **5 billion by 2025**	Internet of Things (IoT) connections is expected to double from 12 billion to **25 billion by 2025**

Source: https://www.iea.org/reports/tracking-buildings-2020/data-centres-and-data-transmission-networks

Market drivers causing the need for…

Speed and scalability

Growing demand requires improved speed of deployment – cutting data center lead times from several years to 18 months or less

To meet the speeds required many data centers are leveraging modular, prefabricated and pretested solutions

“Pay as you grow” - The need for speed and a fast return on investment drive the need for scalable and / or modular solutions

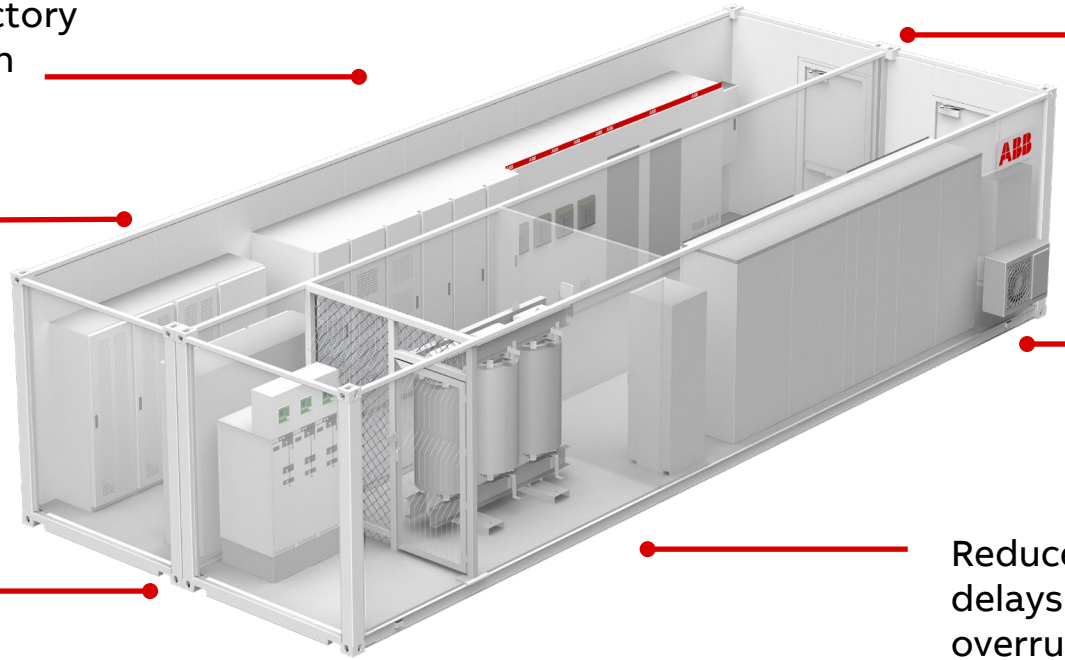
Improve speed to deployment

Prefabricated, pre-engineered integrated solutions

Safe, efficient production in factory environment with factory experts

Prefabricated solutions improve lead times by up to 30%

Prefabricated solutions are integrated and tested before leaving the factory – lowering installation & commissioning



Prefabricated, pre-engineered solutions can improve lead times by up to 50%

Simpler site assembly with modular solution, unload, connect and test

Reduce risk of schedule delays and cost overruns

Improve speed to ROI

Prefabricated, pre-engineered integrated solutions

	Revenue by 6 months*	Revenue by 9 months*	Revenue by 12 months*	Revenue by 18 months*
6 months build	$0	$4.5M	$9M	$18M
9 months build	$0	$0	$4.5M	$13.5M
12 months build	$0	$0	$0	$9M
18 months build	$0	$0	$0	$0

*Based on a 10MW lease at $150 per kW per month

Example: 10MW colocation facility leasing at $150 kW per month.

- Every month the data center is still under construction, it misses a chance to generate $1.5 million.
- Going to market in 6 months instead of 18 months, in this case, earns $18 million
- Hence the vital need for speed.

Prefabricated solutions

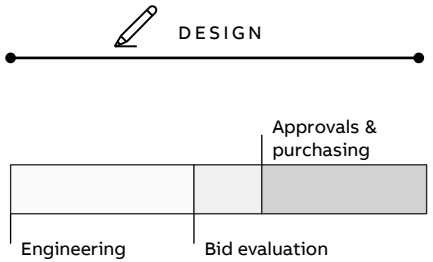
Timeline

Improve speed to deployment with prefabricated solutions

Power module

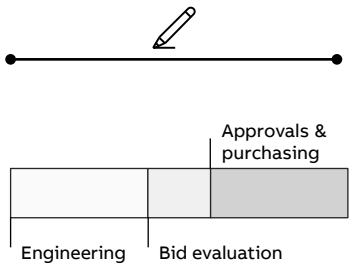
1

Traditional on-site build “stick built”



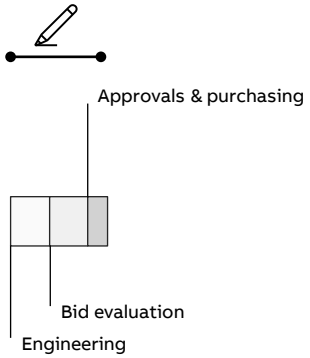
2

Prefabricated off-site eHouse or skid



3

Predesigned, prefabricated off-site eHouse or skid



DESIGN

Traditional data center

Engineering - Requires additional engineering work to ensure equipment interface and integration.

Bid evaluation – Requires evaluation of each component across multiple vendors adding time and complexity.

Approvals and purchasing- Requires multiple purchases orders across vendors involving multiple project managers.

Prefabricated module

Engineering- Designed and integrated by one manufacturer-limits risks, reduces time, and uses fewer resources.

Bid evaluation - All-in-one engineered solutions reduces engineering and evaluation time.

Approvals and purchasing- One vendor and project manager saves time and speeds up purchasing process.

Improve speed to deployment with prefabricated solutions

Power module

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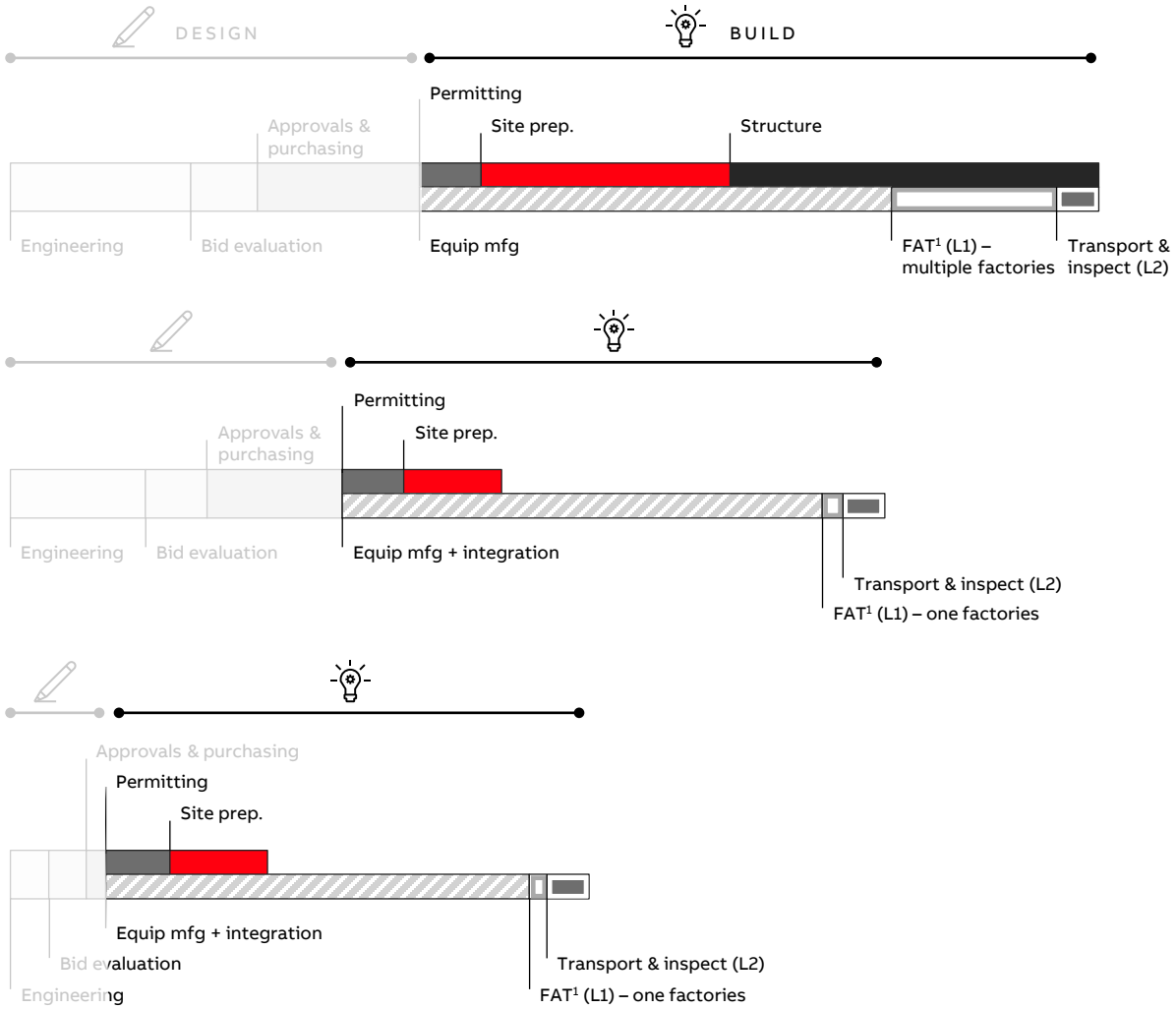

BUILD

Traditional data center

Assembly – Requires coordination between multiple vendors – which can add cost and risk.

Factory testing – Requires time-consuming equipment-level testing across multiple vendors.

Shipping/storage – Multiple shipments can mean scheduling issues and additional storage costs.

Prefabricated module

Assembly – Equipment is integrated in a controlled environment to maximize safety and efficiency.

Factory testing – Factory integration and testing allows problems to be resolved prior to shipment- reducing schedule risks and speeding up installation and commissioning.

Shipping/storage – One shipment allows for safe and easy transport with no storage required on site.

1. Factory Acceptance Testing

Improve speed to deployment with prefabricated solutions

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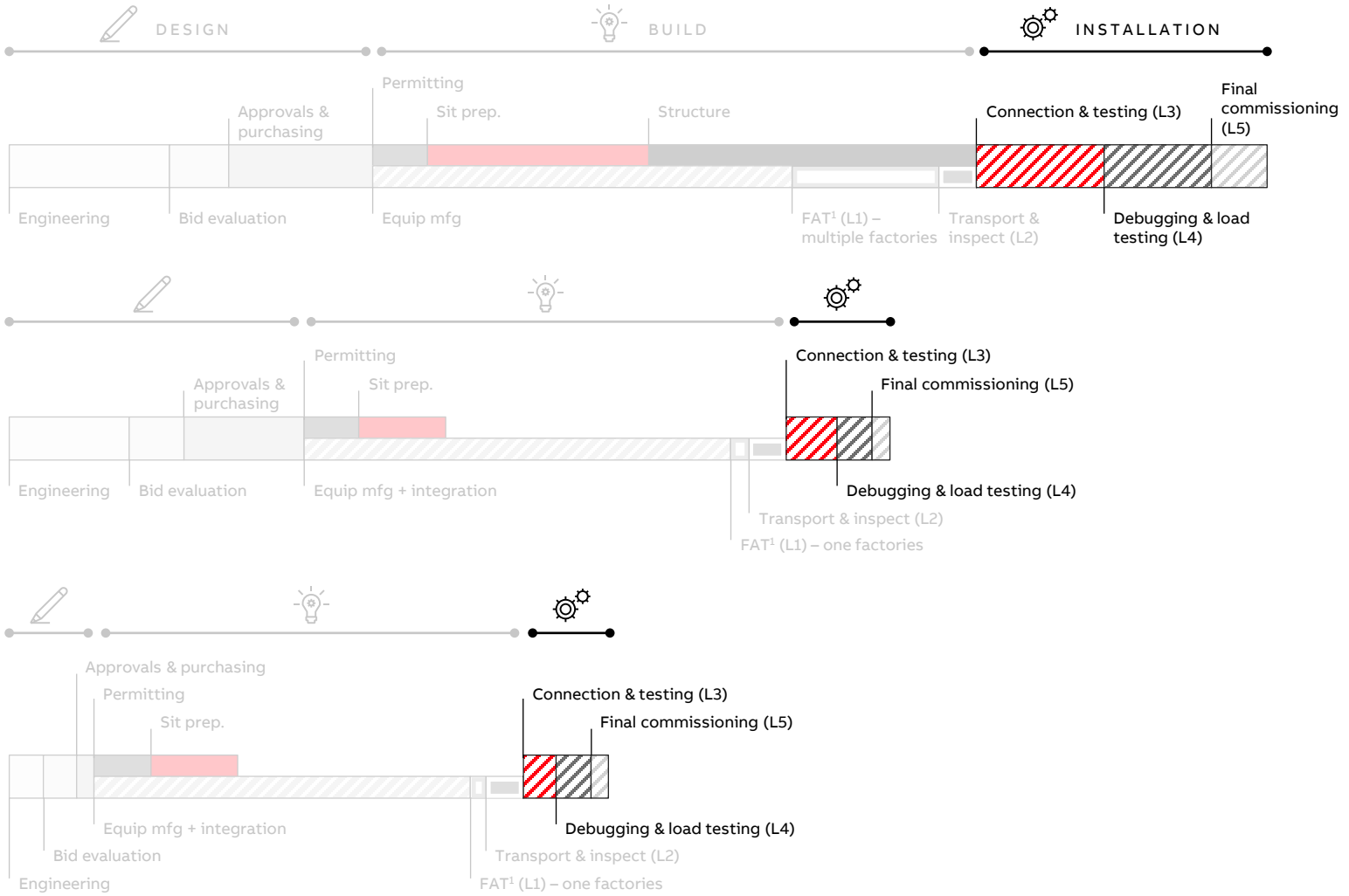

INSTALLATION

Traditional data center

Site Assembly – All equipment is assembled and connected on site increasing risk of cost and schedule delays.

Final testing – First time all the products are integrated and tested – increasing debugging and troubleshooting time required on-site.

Commissioning – Combination of different vendors’ products can cause issues on-site with delays and problem resolution

Prefabricated module

Site assembly – Solution already integrated and connected, all that is required is offload, set in place and connect.

Final testing – Reduced by as much as 40% since most testing has already occurred in the factory.

Commissioning – Process is streamlined, and one vendor is available to provide total support.

1. Factory Acceptance Testing

Improve speed to deployment with prefabricated solutions

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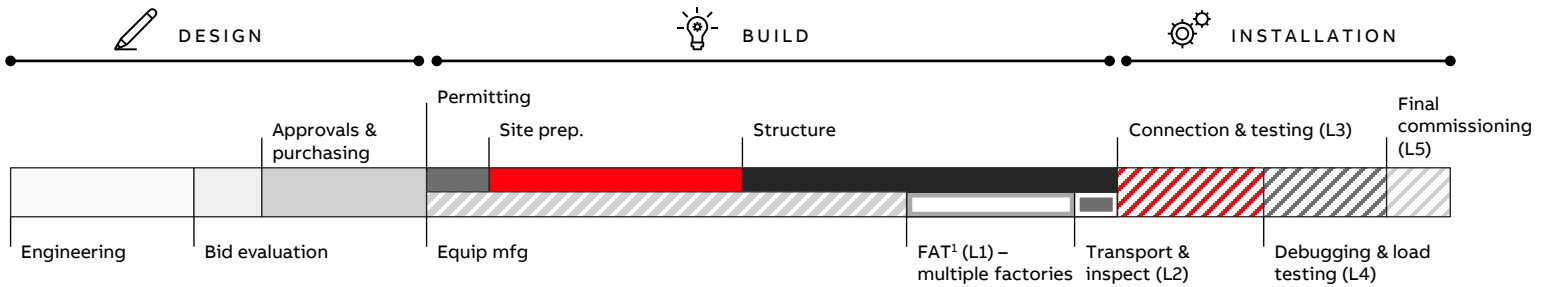

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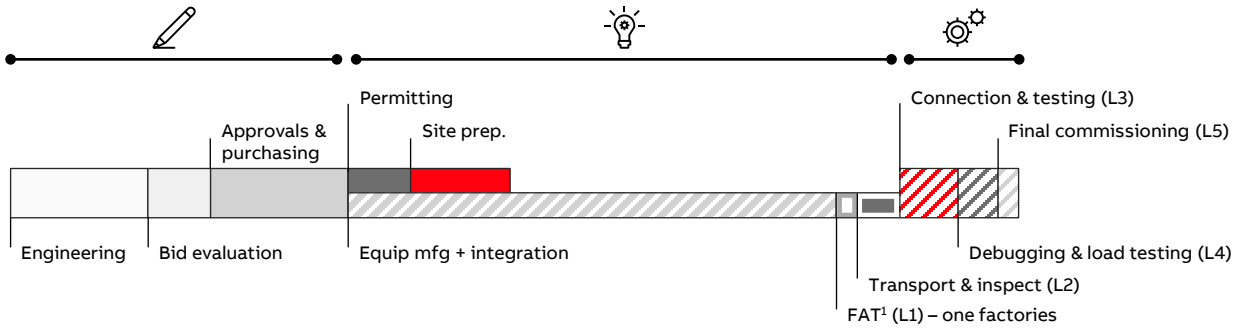
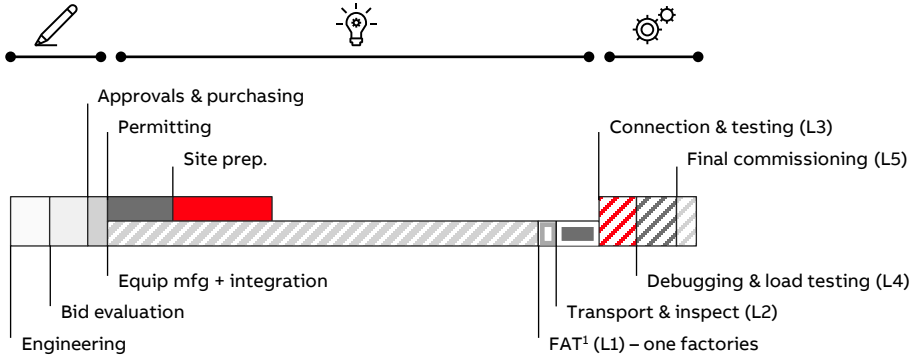


30%
improvement over traditional

3 Predesigned, prefabricated off-site eHouse or skid



50%
improvement over traditional

20%
improvement over prefabricated

1. Factory Acceptance Testing

Prefabricated solutions

Benefits

Improve speed to deployment with prefabricated solutions

Power module

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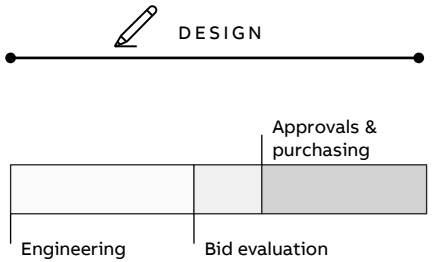

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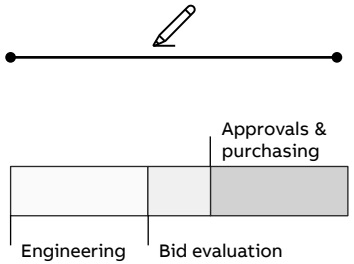

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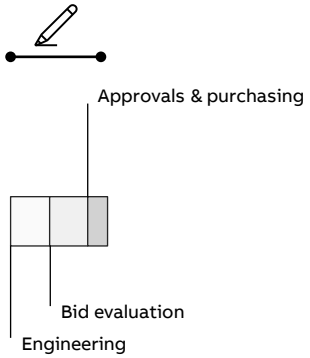

DESIGN

Benefits of prefabricated and predesigned modular data center solution

Reduced time – Solution engineered and equipment interface ensured by one manufacturer

Reduced resources – One vendor and one project manager saves time and speeds up purchasing process

Limits risk – Integration and engineering design work completed by one manufacturer

Improve speed to deployment with prefabricated solutions

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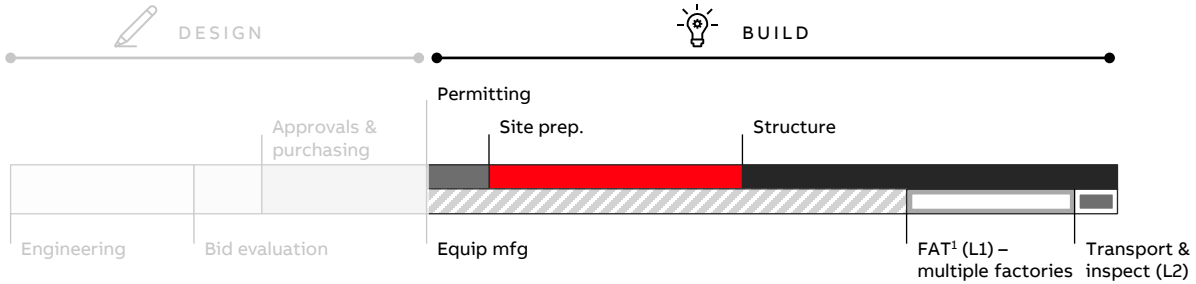

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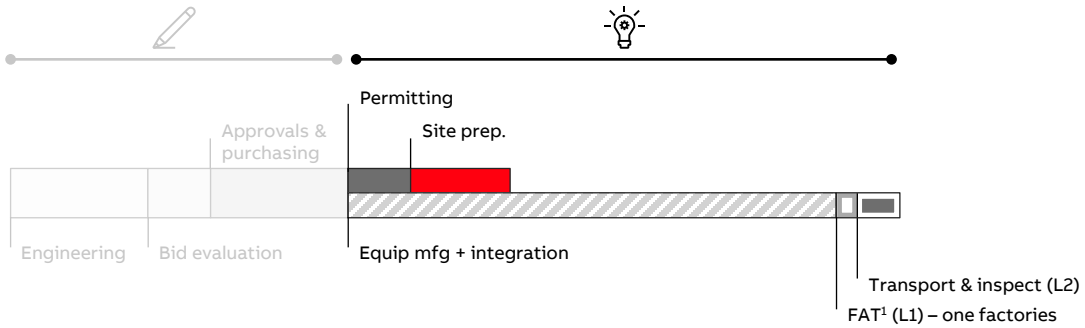

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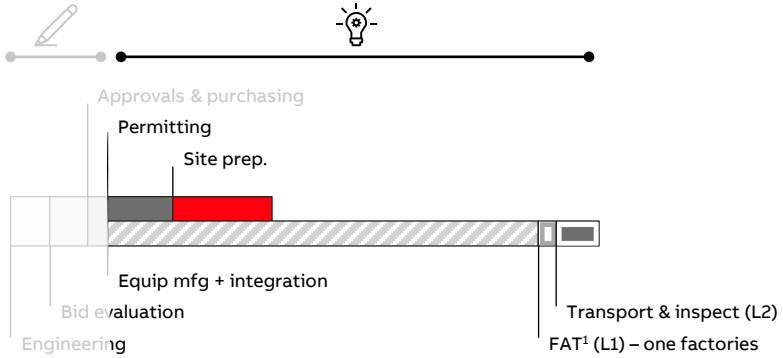

BUILD

Benefits of prefabricated and predesigned modular data center solution

Maximize safety and efficiency – Top quality fabrication and integration in a safe, controlled environment with factory experts.

Limits risks – Factory testing of integrated solutions reduces time and troubleshooting – speeding up installation and commissioning on-site.

Safe and easy transportation – One integrated solution shipment allows for easier transport. less time for receiving and inspection and no on-site storage needed.

1. Factory Acceptance Testing

Improve speed to deployment with prefabricated solutions

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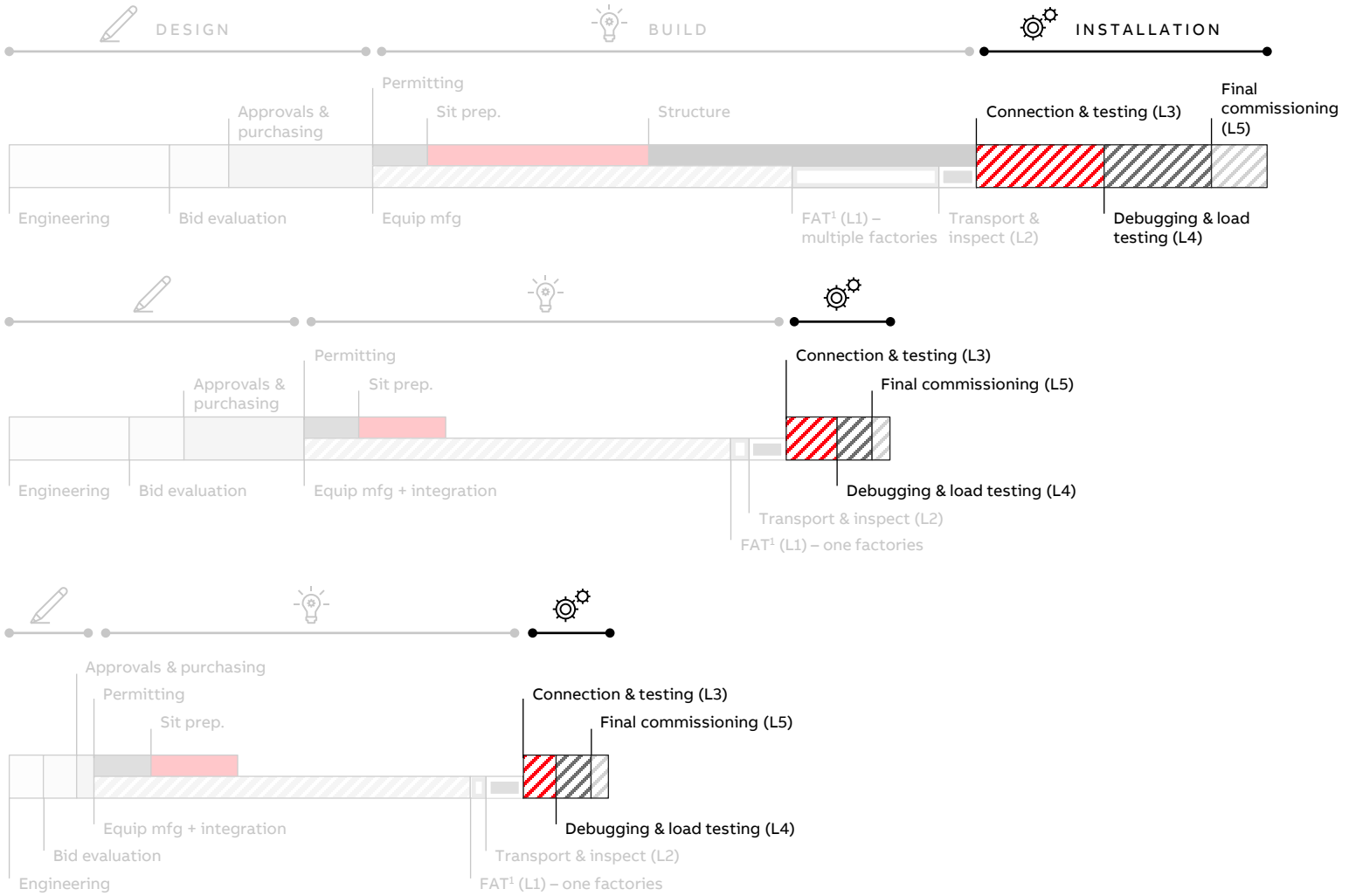

INSTALLATION

Benefits of prefabricated and predesigned modular data center solution

Simpler site assembly – Prefabricated, integrated solution is already interconnected, simply set in place and connect.

Final testing time reduced – Time for final testing on-site is reduced by up to 40% since integrated testing already occurred at the factory.

One vendor for support – Commissioning process is streamlined with one vendor available for total support.

1. Factory Acceptance Testing

Improve speed to deployment with prefabricated solutions

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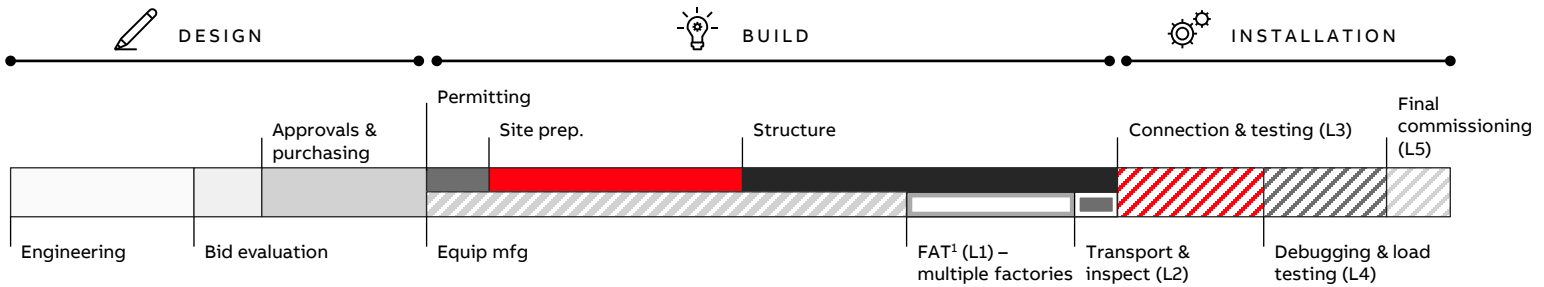

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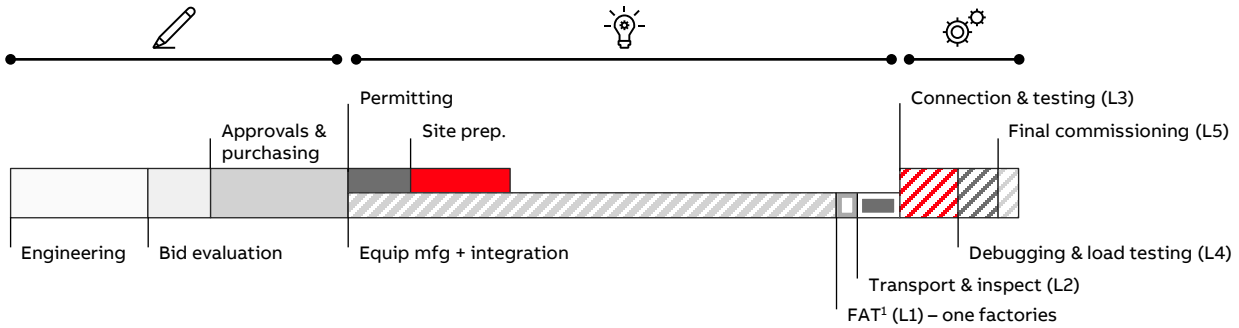

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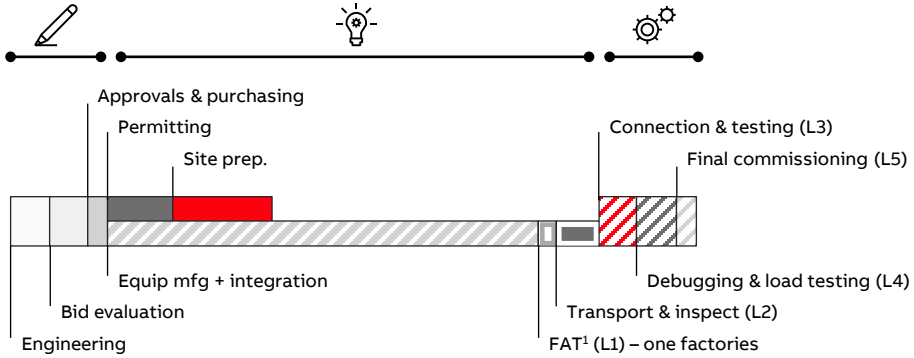

50%
improvement over traditional

20%
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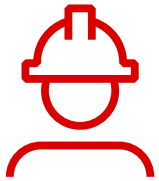
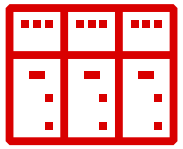
1. Factory Acceptance Testing

Why partner with ABB for your prefabricated & predesigned solutions

Ensure supply
ABB's global footprint provides a vast network of suppliers and factory locations

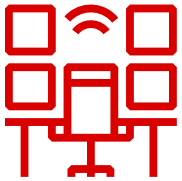


Local support & service
Locations in 100+ countries and over 100K employees



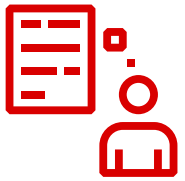
Complete portfolio
Solutions for GB, IEC, and ANSI standards and ability to harmonize across all standards

Domain expertise
100+ years electrical / utility connection knowledge to ensure data center design meets local codes and standards



Lifecyle management
Ensure long-term management of the electrical system with ABB's digital solutions

Reduce risk
Cutting-edge technology built to the highest quality standards



Ease of doing business
One stop shop with a common project manager and harmonized terms, payment schedules and warranty

Avoid costly schedule delays
Library of pre-engineered solutions, optimized for footprint, scalability and ease of deployment


ABB