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WHERE DIGITAL MEETS PHYSICAL

Digital Twin Courses

Building Tomorrow's World Today
Exploring the Digital Twin Framework

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Executive Summary

The Digital Twin Courses offers a comprehensive exploration of the revolutionary Di-Phy Innovation Digital Twin Framework, a cutting-edge technology that bridges the physical and virtual worlds, enabling unprecedented insights and efficiencies across industries. Throughout these courses, participants will gain in-depth knowledge and practical skills to leverage digital twins for optimising operations, enhancing decision-making, and achieving superior outcomes. Covering essential topics such as the Digital Twin Ecosystem, Maturity Model, Strategy, Intelligence Capabilities, Data Services, Visualisation, and more, these courses equips learners with the expertise to harness the power of digital twins for transforming their organisations and staying ahead in the digital era.

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Introduction

Welcome to the Digital Twin Courses, where innovation meets reality and transforms the way we perceive and interact with the world. In today's technology-driven landscape, the Digital Twin Framework emerges as a game-changer, propelling businesses and industries into the future with unparalleled capabilities.

As the line between the physical and digital realms blurs, the Digital Twin concept revolutionises various sectors, from manufacturing and healthcare to smart cities and infrastructure development. By creating virtual replicas of physical assets, processes, and systems, organisations can monitor, analyse, and optimise real-world operations in ways previously unimaginable.

Throughout these courses, we delve into essential topics that form the core of the Digital Twin Framework. Participants are able to explore the Digital Twin Ecosystem, understand the Digital Twin Maturity Model to assess their organisation's readiness, and develop effective Digital Twin Strategies tailored to specific business needs.

In addition, learners will be able to gain insights into data services, integration techniques, and intelligence capabilities like analytics, AI, and ML that empower digital twins to deliver actionable insights. These courses also emphasise the importance of user experience and visualisation to ensure the seamless interaction with digital twins.

Furthermore, participants can delve into the critical aspect of Digital Twin Management, considering credibility factors such as security, privacy, reliability, and risks. Operational support and enterprise alignment are also covered to ensure successful implementation and adoption of the Digital Twin Framework.

By the end of these courses, learners will be equipped with the knowledge and skills to harness the full potential of digital twins, foster innovation, and drive transformative change within their organisations. Join us on this transformative journey as we unlock the limitless possibilities of the Digital Twin Framework.

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Di-Phy Innovations

Di-Phy Innovations is a leading technology company based in New Zealand, specialising in transformative digital twin solutions. With a diverse portfolio encompassing organisational twins, product design, environmental solutions, construction, utilities, and smart cities, we bring a wealth of expertise to drive innovation and efficiency.

Led by visionary founder Regine Deleu, Di-Phy Innovations has a proven track record of driving successful transformation programs. Regine's leadership has been instrumental in fostering innovation, fostering growth, and ensuring long-term sustainability for organisations.

Regine's outstanding contributions have been widely recognised, including being a finalist for the Excellence Supreme Award in 2018, acknowledging her as a top IT professional. She was also a finalist at the Women of Influence Awards in 2015, highlighting her dedication to driving innovation in the industry.

With a vast reservoir of experience, Regine has served on governance boards as an Enterprise Architecture Expert and played a crucial role as a Data Research Advisory Board Member at prestigious institutions such as the International Organisation for Standardisation (ISO) and the Massachusetts Institute of Technology (MIT). These roles signify her commitment to shaping industry standards and pioneering impactful research in data management.

Through our innovative digital twin solutions and Regine's exceptional leadership, Di-Phy Innovations is uniquely positioned to deliver innovative technology solutions that drive organisational success and propel industries forward. Embrace the future of transformation with Di-Phy Innovations, where innovation meets excellence.

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Course Structures

The courses are designed to provide you with a holistic understanding of Digital Twins and equip you with the knowledge and skills needed to harness the full potential of this transformative technology. We can delve into various aspects of Digital Twins, including their ecosystem, maturity model, strategy development, data services, integration, intelligence capabilities such as analytics, AI, and ML, user experience and visualisation, management, credibility considerations, operational support, and enterprise alignment.

Digital Twin Ecosystem

Overall Learning Objectives

- Understand what a Digital Twin is and its role in various industries.

- Learn about the benefits and applications of Digital Twins.

- Recognise the importance of Digital Twins in the modern digital ecosystem.

Lessons

Lesson 1: Introduction to Digital Twins and their role in the ecosystem

Lesson 2: Short introduction to the components of the Digital Twin Ecosystem

Lesson 3: Types of Digital Twins (Asset, Process, System, Organisation)

Duration

½ day

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Digital Twin Strategy

Overall Learning Objectives

- Defining the purpose and objectives of a Digital Twin strategy

- Identifying the right use cases and target areas for Digital Twins

- Aligning Digital Twin strategy with overall business goals

- Addressing challenges and potential barriers in strategy development

- Crafting an actionable and sustainable Digital Twin strategy

Lessons

Lesson 1: Introduction to Digital Twin Strategy

Lesson 2: Crafting the Digital Twin Vision and Mission

Lesson 3: Crafting Digital Twin Goals and Objectives

Lesson 4: Crafting Digital Twin Policies and Principles

Lesson 5: Developing the Digital Twin Value Proposition

Lesson 6: Designing Digital Twin Enterprise Architecture

Lesson 7: Creating the Digital Twin Blueprint

Lesson 8: Developing the Digital Twin Roadmap

Lesson 9: Ensuring Digital Twin Sustainability

Lesson 10: Aligning Digital Twin Strategy with overall business goals

Lesson 11: Addressing challenges and potential barriers in strategy development

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Duration

2 days

Data Services

Overall Learning Objectives

- Data collection methods and technologies for Digital Twins

- Data quality and validation in the context of Digital Twins

- Data storage and management for large-scale Digital Twin deployments

- Leveraging data services for real-time insights and predictive analytics

Lessons

Lesson 1: Introduction to Data Services for Digital Twins

Lesson 2: Data collection methods and technologies for Digital Twins

Lesson 3: Data quality and validation in the context of Digital Twins

Lesson 4: Data Transformation

Lesson 5: Data Contextualisation

Lesson 6: Batch and Real-Time Processing

Lesson 7: Data Pub/Sub Push

Lesson 8: Data Aggregation

Lesson 9: Synthetic Data Generation

Lesson 10: Ontology Management and Semantic Structure

Lesson 11: Data Storage and Archive Services

Duration

2 ½ days

Integration

Overall Learning Objectives

- Integrating physical assets and systems with their virtual counterparts
- Technologies and protocols for seamless integration
- Data synchronisation and communication between the physical and digital realms
- Overcoming integration challenges and interoperability issues
- Scalable and flexible integration architectures

Lessons

Lesson 1: Introduction to Integration for Digital Twins

Lesson 2: Integrating physical assets and systems with their virtual counterparts

Lesson 3: System Integration

Lesson 4: Technologies and protocols for seamless integration

Lesson 5: API Services

Lesson 6: Data synchronisation and communication between the physical and digital realms

Lesson 7: Overcoming integration challenges and interoperability issues

Lesson 8: Scalable and flexible integration architectures

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Lesson 9: Integration best practices and real-world examples

Lesson 10: Security considerations in integration

Lesson 11: Integration testing and validation

Lesson 12: Integration for Digital Twin sustainability and growth

Duration

2 ½ days

Intelligence

Overall Learning Objectives

- Leveraging data analytics for actionable insights

- Introduction to Artificial Intelligence (AI) and Machine Learning (ML) in Digital Twins

- Smart decision-making with AI and ML algorithms

- Predictive and prescriptive analytics for proactive maintenance and optimisation

- Case studies on successful implementations of intelligence capabilities

Lessons

Lesson 1: Introduction to Intelligence and Analytics for Digital Twins

Lesson 2: Edge Intelligence and its role in real-time decision-making

Lesson 3: Command and Control techniques for managing Digital Twin ecosystems

Lesson 4: Orchestration of data and processes in Digital Twins

Lesson 5: Utilising Alerts and Notifications for proactive monitoring

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Lesson 6: Reporting in Digital Twins for data visualisation and insights

Lesson 7: Introduction to Analytics in Digital Twins

Lesson 8: Prediction techniques for anticipating outcomes

Lesson 9: Understanding Machine Learning and Artificial Intelligence in Digital Twins

Lesson 10: Federated Learning and its applications in decentralised Digital Twins

Lesson 11: Simulation in Digital Twins for scenario testing and optimisation

Lesson 12: Mathematical Analytics for in-depth data analysis

Lesson 13: Prescriptive Analytics for data-driven decision-making

Lesson 14: Leveraging Business Rules for rule-based decision systems

Lesson 15: Distributed Ledger and Smart Contracts in Digital Twins

Lesson 16: Composition techniques for combining various intelligence elements

Lesson 17: Future trends and advancements in Intelligence and Analytics for Digital Twins

Duration

3 days

User Experience and Visualisation

Overall Learning Objectives

- Designing intuitive user interfaces for interacting with Digital Twins

- Data visualisation techniques for meaningful insights

- Customisation and personalisation of user experiences

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- Human-computer interaction principles in Digital Twin applications

- Evaluating and improving user experiences with feedback and user testing

Lessons

Lesson 1: Introduction to User Experience (UX) and Visualisation in Digital Twins

Lesson 2: Design Principles for Intuitive User Interfaces

Lesson 3: Data Visualisation Techniques for Meaningful Insights

Lesson 4: Real-Time Monitoring and Visualising Dynamic Data

Lesson 5: Entity Relationship Visualisation for Complex Digital Twin Systems

Lesson 6: Augmented Reality (AR) and Virtual Reality (VR) in Digital Twin Visualisation

Lesson 7: Creating Interactive Dashboards for Digital Twins

Lesson 8: Continuous Intelligence and Real-Time Analytics

Lesson 9: Business Intelligence and Decision Support in Digital Twins

Lesson 10: Business Process Management (BPM) and Workflow Visualisation

Lesson 11: Visualisation Techniques using Gaming Engines

Lesson 12: Rendering Techniques for Realistic Digital Twin Visuals

Lesson 13: Gamification in Digital Twin Visualisation

Lesson 14: Evaluating User Experiences and Usability Testing

Lesson 15: Future Trends in UX and Visualisation for Digital Twins

Duration

3 days

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Digital Twin Management

Overall Learning Objectives

- Governance and oversight of Digital Twins within organisations

- Managing the lifecycle of Digital Twins

- Establishing roles and responsibilities for Digital Twin management

- Ensuring data accuracy, reliability, and accessibility

- Best practices in maintaining and updating Digital Twins

Lessons

Lesson 1: Introduction to Digital Twin Management

Lesson 2: Device Management for Digital Twins

Lesson 3: System Monitoring and Alerting in Digital Twins

Lesson 4: Logging and Data Collection in Digital Twins

Lesson 5: Governance and Oversight of Digital Twins

Lesson 6: Managing the Lifecycle of Digital Twins

Lesson 7: Continuous Digital Twin Improvement

Duration

1 ½ days

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Credibility

Overall Learning Objectives

- Understanding the importance of credibility in Digital Twins

- Mitigating security risks and ensuring data privacy

- Ensuring the reliability and accuracy of Digital Twin data

- Identifying and managing potential risks associated with Digital Twins

- Compliance with industry standards and regulations

Lessons

Lesson 1: Introduction to Digital Twin Credibility

Lesson 2: Mitigating Security Risks in Digital Twins

Lesson 3: Ensuring Data Privacy in Digital Twins

Lesson 4: Encryption Techniques for Digital Twins

Lesson 5: Ensuring Reliability and Resilience of Digital Twin Data

Lesson 6: Identifying and Managing Risks in Digital Twins

Lesson 7: Compliance with Industry Standards and Regulations

Duration

1 ½ days

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Operational Support

Overall Learning Objectives

- Providing ongoing support for Digital Twin implementations

- Monitoring and troubleshooting Digital Twin systems.

- Addressing common operational challenges and issues

- Establishing feedback loops for continuous improvement

- Building a support infrastructure for sustainable Digital Twin operations

Lessons

Lesson 1: Introduction to Digital Twin Operational Support

Lesson 2: Operational Governance

Lesson 3: Administration Management

Lesson 4: Asset Management in Digital Twins

Lesson 5: Training for Digital Twin Users

Lesson 6: Settlement Management

Lesson 7: Addressing Health and Safety in Digital Twins

Lesson 8: Workflow and Production Management

Lesson 9: Release and Deployment Management

Duration

1 ½ days

Enterprise Alignment

Overall Learning Objectives

- Aligning Digital Twin initiatives with the organisation's overall strategy

- Gaining buy-in from stakeholders and decision-makers

- Collaborating across departments and teams for successful implementation

- Change management strategies for a smooth transition to Digital Twins

- Measuring and communicating the impact of Digital Twin initiatives on the enterprise.

Lessons

Lesson 1: Introduction to Digital Twin Enterprise Alignment

Lesson 2: Gaining Buy-In from Stakeholders and Decision-Makers

Lesson 3: Legal and Regulatory Considerations

Lesson 4: Financial Management for Digital Twin Initiatives

Lesson 5: Investment Portfolio Management

Lesson 6: Collaboration Across Departments and Teams

Lesson 7: HR Considerations for Digital Twins

Lesson 8: Partnership Management

Lesson 9: Supply Chain Management

Lesson 10: Enterprise Audit and Risk Management

Lesson 11: Technology Management for Digital Twins

Lesson 12: Knowledge Management

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Digital Twin Maturity Model

Overall Learning Objectives

- Understanding the levels of the Digital Twin Maturity Model

- Assessing organisational readiness for adopting Digital Twins

- Steps for advancing through the maturity levels.

- Best practices and success stories in achieving higher maturity levels.

- Developing a roadmap for Digital Twin implementation based on the model.

Lessons

Lesson 1: Introduction to Digital Twin Maturity Model

Lesson 2: Understanding the levels of the Digital Twin Maturity Model

Lesson 3: Assessing organisational readiness for adopting Digital Twins

Duration

½ days

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Profile Trainer

Regine Deleu

Regine is a dynamic and entrepreneurial leader with a wealth of international experience in orchestrating successful transformation programs. Her expertise lies in spearheading complex business transformations that drive innovation, foster growth, and ensure long-term sustainability.

What sets Regine apart is her innate creativity and out-of-the-box thinking. She approaches challenges with a fresh and inventive perspective, forging new pathways and devising unconventional solutions that break the traditional moulds. Her ability to convert insights and ideas into actionable outcomes generates tangible and meaningful results, inspiring behavioural change and creating new opportunities for the organisation.

Regine's impressive track record extends to her service on prestigious governance boards. As an Enterprise Architecture Expert and a Data Research Advisory Board Member, she has contributed her expertise to influential organisations such as the International Organisation for Standardisation and the Massachusetts Institute of Technology, respectively. Her strategic insights and forward-thinking approach have been instrumental in shaping industry standards and driving cutting-edge research.

With Regine at the helm, executives can expect unparalleled leadership, innovation, and a resolute commitment to unlocking the full potential of their organisations. Her ability to navigate complex landscapes, coupled with her passion for driving meaningful change, make her an invaluable asset for any business seeking to achieve transformative and sustainable growth.

Awards

- Finalist Supreme Award – IT Professional of the Year 2018, IT Professionals NS

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- Finalist for Innovation for the 2015 Women of Influence Award, Fairfax Media and Westpac

- Enterprise Architecture Values in Action Award, Inland Revenue

Education

- Master of Computer Science

- Bachelor of Engineering, Computer Science

Professional Experience

Regine is a visionary leader who has spearheaded the development of Digital Twins across various industries, including Smart Cities, Ports, Utilities (energy, waste management), Production lines, Damage prevention, and Digital Twins for Organisations. Her expertise lies in crafting comprehensive strategies, roadmaps, and overseeing the implementation of these innovative digital solutions.

In both the public and private sectors, Regine excels in creating and executing strategic goals and direction, as well as driving digital transformation programs. Her portfolio includes significant achievements such as envisioning the Digital Future for Local Government, Telecommunications, and Security Services. Additionally, she has played a pivotal role in the creation of a country-wide energy grid digital twin, revolutionising the energy sector's operations.

Regine's unique blend of strategic thinking and hands-on expertise has made her an invaluable asset in the world of digital innovation. Her accomplishments in establishing and implementing digital twins across diverse industries have not only enhanced operational efficiency but also empowered organisations to make data-driven decisions for long-term success.

Data Culture and Governance Model – Fire and Emergency New Zealand

The Fire and Emergency New Zealand (FENS) Data Culture and Governance Model is an essential first phase in the creation of a cutting-edge digital twin system aimed at identifying potential hazards and dangers. By leveraging the power of data, the digital twin aims to enhance FENS's operational capabilities, providing critical insights to identify, assess, and mitigate potential hazards and dangers effectively.

Digital Twin – Auckland Transport

Regine's visionary leadership led to the successful creation of a transformative Digital Twin for Auckland Transport, becoming an integral part of their change management initiatives. Her contributions encompassed the establishment of a dedicated architecture team, the design of purpose-driven strategies and goals, and the meticulous crafting of a Digital Twin blueprint and roadmap.

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With a keen eye for innovation and attention to detail, Regine took charge of the entire implementation process, ensuring seamless execution from start to finish. Her strategic approach and hands-on guidance have enabled Auckland Transport to harness the power of the Digital Twin, revolutionising their operations and paving the way for enhanced decision-making and performance optimisation. Under her direction, the Digital Twin initiative has become a pivotal driver of positive change, positioning Auckland Transport at the forefront of cutting-edge technology adoption in the transportation sector.

Government Enterprise Architecture for New Zealand

The core objective of Enterprise Architecture is to guarantee that technology, information, and process development investments are not only cost-effective but also sustainable, while remaining in perfect alignment with the organisation's strategic objectives. This comprehensive framework is meticulously crafted to be adaptable for implementation at agency, sector, and All-Of-Government levels. By embracing Enterprise Architecture, executives can optimise resource allocation, drive innovation, and achieve seamless integration of technology solutions across the organisation, ultimately leading to increased efficiency and enhanced strategic outcomes.

Data and Information Management Framework

In today's digital landscape, information has emerged as a critical economic resource and stands as one of the organisation's most invaluable assets. However, despite its undeniable significance, quantifying the true value of information has been a challenge. As data consumption, storage, processing, and maintenance demands grow exponentially, this invaluable asset often goes unrecognised financially. As executives, recognising the true value of information and devising effective strategies to measure and capitalise on its potential will be essential in driving innovation, optimising resource allocation, and gaining a competitive edge in the dynamic business landscape. Embracing data-driven decision-making and implementing robust information management practices will not only unlock hidden value but also empower the organisation to harness the full potential of its most prised asset - information.

Accelerated Delivery Methodology

The driving force behind the Accelerated Delivery Methodology is to expedite the delivery of superior government services for New Zealanders, with a keen focus on customer outcomes and service experiences. This methodology achieves its objectives by harnessing the power of technology enablement, bolstered by effective policy support and streamlined delivery processes. By adopting this approach, executives can elevate their organisation's service delivery capabilities, ensuring that citizens receive efficient and customer-centric services that cater to their evolving needs and preferences. The Accelerated Delivery Methodology is a transformative tool that empowers executives to foster innovation, optimise operational efficiency, and elevate customer satisfaction, solidifying the organisation's reputation as a forward-thinking and citizen-focused government entity.

Government Business Capability Model

The Government Business Capability Model stands as a pivotal achievement within the New Zealand Government Strategy, specifically designed to enhance public sector business capabilities. This model serves as a unifying framework, laying the foundation for a substantial improvement in business capabilities across various government entities. By embracing this model, executives can foster collaboration, facilitate seamless information sharing, and identify new avenues for capability development. With a standardised and integrated approach to business capabilities, the government can drive efficiency, enhance interagency collaboration, and deliver more impactful services to citizens. The Government Business Capability Model is a strategic tool that empowers executives to cultivate a cohesive and agile government ecosystem, positioning New Zealand as a leader in delivering effective and citizen-centric solutions.

Other Training Programmes

In addition to our core offerings, we are pleased to present a series of highly valuable courses designed to empower your organisation in the realm of data and digital transformation. These courses include:

Create a Data Culture

This course delves into the strategies and best practices for fostering a data-centric culture within your organisation, laying the groundwork for data-driven decision-making and innovation.

Get the Best Business Insights

Unlock the full potential of your data with this course, designed to equip your teams with the skills to extract meaningful insights and actionable intelligence from your data resources.

Industry Specific Digital Twins – Agriculture, Green Buildings, and Digital Twin of an Organisation

By enrolling in our industry-specific courses, your teams will gain a comprehensive understanding of the key elements that make Digital Twin technology indispensable for their respective sectors. Our courses cover critical aspects such as strategy development, data services, seamless integration, advanced intelligence utilisation, and enhancing user experience through advanced visualisation techniques.

The benefits of Digital Twin technology are far-reaching across industries. In Construction, it streamlines project planning, design, and execution, leading to reduced costs and improved project outcomes. For the Energy sector, Digital Twin optimises asset performance and maintenance, ensuring uninterrupted operations and cost-effective energy management.

In Smart Cities, Digital Twin enables data-driven urban planning and real-time monitoring, enhancing city resilience and sustainability. For Agriculture, it revolutionises precision farming, optimising resource usage, and maximising crop yields.

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Green Buildings benefit from Digital Twin through energy efficiency and sustainable building design, providing a greener and more eco-friendly built environment. Finally, implementing Digital Twin in an organisation empowers data-driven decision-making, enhances operational efficiency, and unlocks new possibilities for growth and innovation.

The specialised knowledge and skills gained from our Digital Twin courses will empower your teams to stay at the forefront of their industries, ensuring success and competitiveness in the digital age. Embrace the future of industry-specific innovation with our tailored Digital Twin courses.

Fee

The pricing for our courses is as follows:

- US$ 1,400 per day for group classes

- US$ 3,000 per day for personalised one-on-one classes

These rates reflect our commitment to providing high-quality, tailored learning experiences that meet the unique needs of your team. By investing in our training programs, your organisation will gain valuable insights, skills, and strategies to thrive in today's dynamic business landscape.

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