

UP! Start your career in the Lift Industry



This is John Gale

Design Consultant

to International design groups, product manufacturers and marketing companies.

My journey in the lift industry began in 1965



Graduated as a Visual Artist and Designer and winner of numerous design awards.

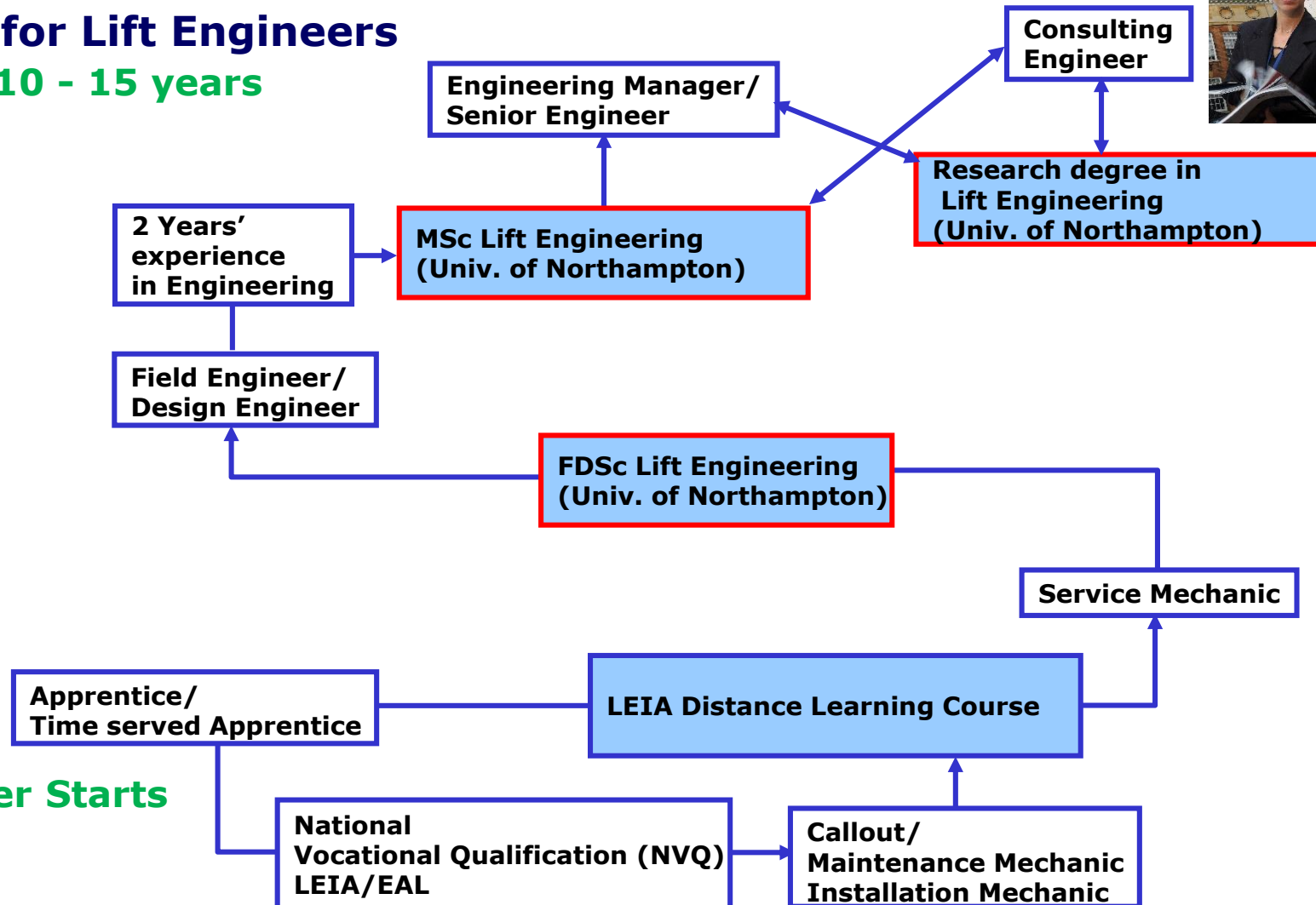
Author of books and numerous articles for national and international trade journals, covering major architectural events, product launches, symposiums etc.

Advisor to lift associations. BLA – LEIA – PALM – ELA ...

Education and Career Path for Lift Engineers

10 - 15 years

Top of Tree



Career Starts Here

1927----- great changes -----2017



What is happening now and in the future

- The lift education sausage machine has to carry on for now.
- Producing people to work in the Lift Industry.
- Gathering them from many different sectors and backgrounds – then feeding them with a mixture of educational nuggets and hoping they emerge ready for the workplace.



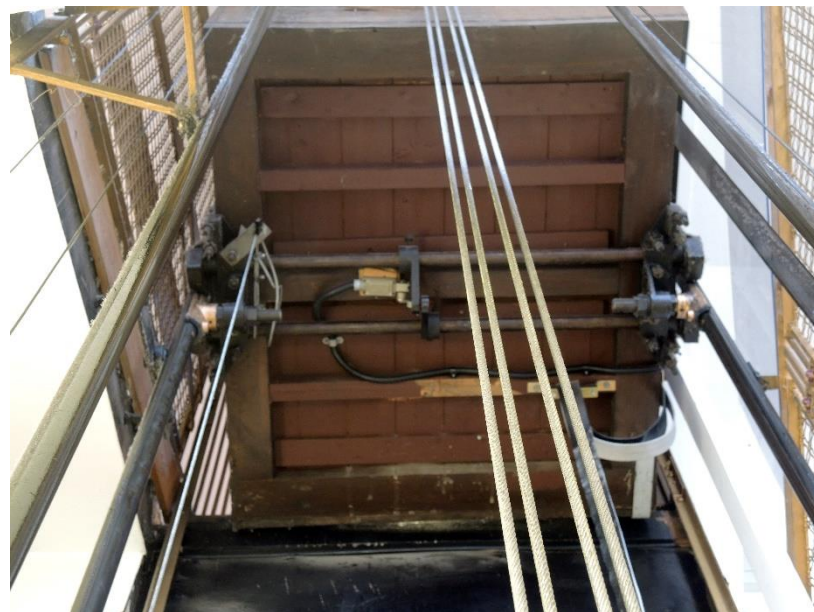


The Workplace 2017

Some typical workplaces the new lift engineers might experience.



Some more workplaces the new lift engineers might experience.



Some thoughts from experienced UK Lift People

- **Gary Falk** has over 30 years active involvement in the lift industry including servicing, installation, technical training and the evaluation of technicians.

We asked Gary for his overview of training as regards to lift engineers working in the UK and what he felt was needed.



Gary suggested the following key requirements –

The need for the standardisation of qualifications across all lift companies and countries. *At the moment it is very inconsistent.*

Some thoughts from experienced UK Lift People

- That training organisations should provide a [Lift Industry Approved Scheme](#) that ensures national and international standards have been reached.
- The training should include real, practical, site based elements over an extended period (5 years) with field assessments made on a regular basis and cover all the different lift disciplines.
- Training assessors should be Lift Industry proficient and have at least 10 years experience. [Must be a competent person in the subject they are assessing.](#)
- All must have a working understanding of English.

Some thoughts from experienced UK Lift People

If you can't understand English you would not know where the key to the door was.



Some thoughts from experienced UK Lift People

David Jackson has work in the industry for over 30 years holding many senior positions in one of the UK's largest independent Lift Companies. David is currently the services managing director for the Jackson Group.



Some thoughts from experienced UK Lift People

History has proved that in difficult financial times training is often cut back or abandoned by many within the lift sector.

- *This may give a short term financial gain but compromises safety, customer service and Industry Standards.*

Quality training and competence based assessment is extremely important. Robust Apprenticeship and Improver Schemes have proved to give long term benefits.

- *We have noticed that adult trainees require less additional support than young apprentices. However, as a Company we have found it beneficial to encourage both and this balance has helped the company gain loyal and flexible qualified staff.*

Some thoughts from experienced UK Lift People

- *We take on 6 – 8 apprentices each year in addition to encouraging adult engineering support staff to take part in the improver scheme. These schemes lead to NVQ2 or NVQ3 qualifications.*

As a company have seen a lack of consistency as regards to Training in the Lift sector. As a result of this we have, over the last 4 years, been working with LEIA to develop a new educational approach – Trailblazer Apprenticeships.

- *At present the Trailblazer standard for Lifts, Escalators, Electro-mechanics has been approved and an Assessment Plan is being developed. The expected training period is 36 – 42 months and will lead to a level 3 QCF NVQ Diploma.*

Some thoughts from experienced UK Lift People

The Company has 507 staff in the UK which includes **325** field staff

"We only have a small turn over of field engineers and apprentices. The majority stay with us for many years. However, having a steady flow of apprentices and improvers undergoing training is important and has been essential to our success".



Education inside global lift companies

Federica Matté
Global Learning & Development Management



Learning & Development
@Wittur

Wittur Academy



sema^{tic}
a WITTUR brand

Education inside global lift companies

WITTUR ACADEMY
Your chance to grow. Together.



Aim:

To support organizational and people development by fostering skills and competences of our employees on a global level, in line with WITTUR overall strategy

The LEIA educational initiatives

- **Nick Mellor** has a great deal of experience of the Lift Industry. He is now the LEIA chief executive and was the technical director before that. Mellor has also played an important part in setting up many educational partnerships to progress Lift Education



UK. qualifications system

Vocational (competence) qualifications

QCF NVQ Diploma

QCF Certificate

**QCF NVQ (Qualifications Credit Framework
National Vocational Qualifications)
Diplomas Regulated by Ofqual
(Government Quango)
QCF NVQ Diplomas based upon National
Occupational Standards, devised by Sector
Skills Councils
QCF NVQ Diplomas developed and awarded
by Awarding Organisations
Covers many industries, not just lifts**

Knowledge qualifications

LEIA Distance Learning

HNC

Degree

MSc

LEIA distance learning

- Started in the early 1980's to overcome the lack of courses available at Technical Colleges
- Initially 7 full units and two half units
- Revised and extended in 2000 to include
- IOSH Managing Safely for LEIA
- Construction Management
- Stairlifts

LEIA distance learning course

- Three starts within the year: January, May and September
- Any unit can be started at these times (Half and Full)
- Unit must be completed within a set time
- No hierarchy of units

	First Semester January 2018	Second Semester May 2018	Third Semester September 2018	Fourth Semester January 2019
Half Unit	Study	End Test (1 st opportunity)	End Test (last opportunity)	
Full Unit	Study	Study	End Test (1 st opportunity)	End Test (last opportunity)

Distance learning units

Mnemonic Code	Unit Title	Code Derivation
GT1F3	Introduction to Lift Technology	General Technology Part 1 Full Unit Level 3
GT2F4	Fundamentals of Lift Technology	General Technology Part 2 Full Unit Level 4
MTF4	Advanced Lift Technology - Mechanical	Mechanical Technology Full Unit Level 4
ETF4	Advanced Lift Technology - Electrical	Electrical Technology Full Unit Level 4
HTF4	Advanced Lift Technology - Hydraulic	Hydraulic Technology Full Unit Level 4
SCF4	Electronic Systems and Controls for Lifts	Systems and Controls Full Unit Level 4
CM1H4	Management of a Lift/Escalator Contract - Part 1: Commercial	Contract Management Part 1 Half Unit Level 4
CM2H4	Management of a Lift/Escalator Contract - Part 2: Site	Contract Management Part 2 Half Unit Level 4
EWH4	Escalators and Moving Walks	Escalators and Moving Walks Half Unit Level 4
MSH4	IOSH Managing Safely for LEIA	Managing Safely Half Unit Level 4

Vocational Training

- BS 7255 Code of Practice for Safe Working on Lifts:
- 5.2.2 Lift fitter
- A lift fitter should be suitably trained, qualified by knowledge and practical experience, provided with necessary instructions and supported within their organization to enable the required operations to be safely carried out.
- NOTES go on to suggest suggested minimum qualifications based on relevant pathways plus product specific training
- Similar recommendations in BS 7801 (escalators and moving walks) and BS 9102 (lifting platforms)

Vocational Training

- QCF NVQ Diplomas - recognition of competency
- Obtained by assessment of a demonstration of competence
 - NVQ = 'Show me'
 - DL = 'Tell me'
- Learners produce a record of evidence (portfolio) over the approximately 2 years of assessment, demonstrating the work they have done

Vocational Training

- Assessment Methodology
- Assessment Evidence:
 - Workplace observation
 - Portfolio of evidence
 - Information provided by supervisors/ managers
 - Assignment/ projects
 - Questions
 - Video/ photographic records
 - Other e.g. oral recorded evidence, other training etc.

Vocational Training

- Level 2 qualifications:
- EAL Level 2 NVQ Diploma in Engineering Maintenance and Installation (QCF)
- Pathways:
 - Installing Stairlifts, Servicing Stairlifts
 - Installing Service Lifts, Servicing Service Lifts
 - Installing Lifting Platforms, Servicing Lifting Platforms

Vocational Training

- Level 3 qualifications
- EAL Level 3 NVQ Diploma in Engineering Maintenance (QCF)
- Pathways:
 - Lift Servicing, Lift Repair, Escalator Repair and Service
- EAL Level 3 NVQ Diploma in Installation and Commissioning (QCF)
- Pathways:
 - Traction Lift Installation, Hydraulic Lift Installation, Escalator Installation and Commissioning

Vocational Training

- Level 4 qualification
- Level 4 Certificate in Performing Testing Operations in the Lift and Escalator Industry (QCF)
- Options:
 - Performing testing operations on existing/modernised equipment in the Lift and Escalator Industry
 - Performing commissioning tests on new equipment in the Lift and Escalator industry

Vocational Training

- The LEIA Centre
- LEIA are a recognized assessment centre for EAL awards
- Satellite centres associated with LEIA undertake the assessment
- LEIA undertakes
 - Registration of candidate
 - Claiming of certification

Vocational Training

- The LEIA Centre
- There are advantages in LEIA undertaking a significant proportion of the registrations and certifications:
 - Central co-ordination of qualifications across the industry
 - Development of new and revised qualifications
 - Development of the underpinning National Occupational Standards (NOS)
- This work is done for the whole of the UK lift and escalator industry

Apprenticeships

- Apprenticeships are undergoing a fundamental change
- Current framework specifications are being withdrawn and replaced by 'Trailblazer' apprentice standards
- Government thinking led by the Richard Review of 2012



Apprenticeships

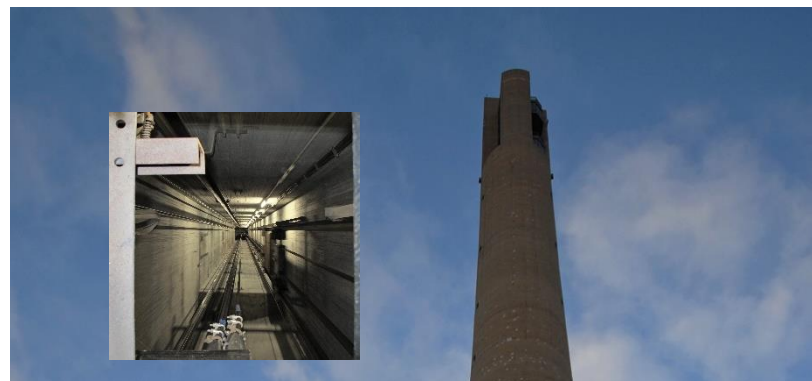
- The groups who prepare the Trailblazer standards are required by the government to be 'Employer-led'
- Training providers, technical colleges, and trade associations may assist at the invitation of the employer group

Apprenticeships

- The Lift+Escalator Trailblazer Group have two Standards:
 - Level 3 Lift and Escalator Electromechanic apprentice. (Has been accepted by government Institute for Apprenticeships (IfA))
 - Stairlift, Platform Lift and Service Lift Electromechanic apprentice. Development in abeyance.
- Each Standard requires an Assessment Plan to describe how the Standard will be delivered. The Level 3 Assessment Plan has been submitted to IfA; awaiting decision.

Northampton and the Lift Industry

- The Express Lift Company
- The Test Tower - The University



Lift Industry Training and Academic Education

Stefan Kaczmarczyk

Professor, Postgraduate Programme
Leader: Lift Engineering
Engineering and Technology



stefan.kaczmarczyk@northampton.ac.uk

Lift Industry Training and Academic Education

BEng/MEng Mechanical Engineering

BEng/MEng Electro-Mechanical Engineering

BEng/MEng Electrical and Electronic Engineering

BSc(Hons) Non-Destructive Testing

BSc(Hons)

MSc Engineering

HNC/ FdSc MSc Lift Engineering

PhD/MPhil in Engineering/ Lift Engineering

NETP

Northamptonshire
Enterprise Partnership



ThyssenKrupp Elevator



Lift Industry Training and Academic Education

Background

- 1979 – Introduction of the first edition of European Standard EN81-1 (introduced in the UK as BS5655)
- UK Lift industry needed wide ranging re-education of workforce – both Design and Field service
- Distance learning the best mechanism for delivery
- 1983 – NALM (now LEIA)/ UCN (now UoN) introduce Continuing Education Certificate (later Professional Development Certificate)
- 1998 – Launch of the MSc in Lift Engineering
- 2003-04 – Launch of the Foundation Degree in Lift Engineering
- 2008 – Launch of HNC in Lift Engineering
- Research Degree (PhD/MPhil) programme offered since 2003

Lift Industry Training and Academic Education

- The challenge for lift and escalator engineering practitioners and researchers working in the area of modern vertical transportation technology is to design systems that will provide efficient and safe service.
- Academic qualifications / awards at Northampton have been developed and continue to expand through a research informed education programme in the specialist area of lift and escalator technology.
- The programme integrates the key elements: theory, learning, research, innovation and industrial practice.
- The programme has generated impact involving new skills, designs and product development.

Lift Industry Training and Academic Education

Research & Innovation

PhD / MPhil

MSc

Foundation Degree

HNC

A complete provision for life long academic education which integrates research & innovation

Academic Awards

Qualifications:

- Foundation Degree (FdSc)
- Higher National Certificate (HNC)
- Master of Science (MSc)
- Research Degrees (PhD/ MPhil)

The Partnership for Lift Engineering Education



Partnership for Research and Innovation



ThyssenKrupp Elevator

FdSc Lift Engineering

- ❑ Foundation Degrees were first proposed by the Government in *Foundation Degrees: Consultation Paper, Department for Education and Employment (DfEE), 15th Feb. 2000.*
- ❑ The FdSc is an academic qualification to have a number of principles within their design, which were specified by Higher Education Funding Council for England (HEFCE). These are:
 - 240 CATS (Credit Accumulation and Transfer System) points
 - Equivalent of two years full time, can be delivered part time.
 - Must include work based learning
 - Demonstrate links to higher qualifications
 - Partnerships between institutions are encouraged.

FdSc Lift Engineering modular structure

STAGE 1	STAGE 2
ENG1024 Mathematics for Technology Part 1 (20 credits)	ENG2026 Case Study (20 credits)
ENG1039 Fundamentals of Lift Technology (20 credits)	ENG2027 Lift Applications and Codes (20 credits)
ENG1025 Introduction to Engineering Design (20 credits)	ENG2028 Electronic Systems and Controls for Lifts (20 credits)
CSY1023 ICT Application (20 credits)	ENG2042 Advanced Lift Technology Mechanical (20 credits)
ENG1028 Contract Management (10 credits)	ENG2043 Advanced Lift Technology Electrical (20 credits)
ENG1044 Contract Management 2 (10 credits)	ENG2044 Advanced Lift Technology Hydraulic (20 credits)
ENG1042 Lift Engineering Project (BTEC/LEIA 20 credits)	

FdSc Lift Engineering modular structure (2)

- The course leads to an academic qualification made up of a combination of LEIA Distance Learning modules (units) and the University Lift Engineering modules.
- Designed for people who are working in the lift industry, we do not expect the majority of applicants to have any formal qualifications but to have appropriate work experience.
- Those without relevant work experience may enter the course with one A-level qualification as well as GCSE Mathematics at grade C or above.
- Students are required to complete a number of modules to a total of 240 credits.
- Maximum 6 years to complete and pass all of the modules required for the award.
- Successful students may go on from the FdSc Lift Engineering to complete the BSc (Hons) Engineering.

FdSc Lift Engineering Study Path

Stage 1		Stage 2	
Year 1	Year 2	Year 3	Year 4
Fundamentals of Lift Technology (Level 4 - 20 credits)	Introduction to Engineering Design (Level 4 - 20 credits)	Case Study (Level 5 - 20 credits)	Electronic Systems and Controls for Lifts (Level 5 - 20 credits)
ICT Applications (Level 4 - 20 credits)	Lift Engineering Project (Level 4 - 20 credits)	Lift Applications and Codes (Level 5 - 20 credits)	Advanced Lift Technology Electrical (Level 5 - 20 credits)
Mathematics for Technology Part 1 (Level 4 - 20 credits)	Contract Management 2 (Level 4 - 10 credits)	Advanced Lift Technology Mechanical* (Level 5 - 20 credits)	Advanced Lift Technology Hydraulic (Level 5 - 20 credits)
Contract Management (Level 4 - 10 credits)			

HNC Lift Engineering modular structure

STAGE 1	STAGE 2
ENG1024 Mathematics for Technology Part 1 (20 credits)	ENG2042 Advanced Lift Technology Mechanical* (20 credits)
ENG1039 Fundamentals of Lift Technology (20 credits)	ENG2043 Advanced Lift Technology Electrical* (20 credits)
ENG1025 Introduction to Engineering Design (20 credits)	ENG2044 Advanced Lift Technology Hydraulic* (20 credits)
CSY1023 ICT Application (20 credits)	
ENG1028 Contract Management (10 credits)	
ENG1044 Contract Management 2 (10 credits)	
ENG1042 Lift Engineering Project (BTEC/LEIA 20 credits)	

* Students take two of the three Stage 2 modules (40 credits)

HNC Lift Engineering modular structure (2)

- The course leads to an academic qualification made up of a combination of LEIA Distance Learning modules (units) and the University Lift Engineering modules.
- Entry requirements similar to FdSc.
- Students are required to complete a number of modules to a total of 160 credits.
- Maximum of 4 years to complete and pass all of the modules required for the award.

HNC Lift Engineering Course Study Path

Year 1	Year 2	Year 3
Fundamentals of Lift Technology (Level 4 - 20 credits)	Mathematics for Technology Part I (Level 4 - 20 credits)	Advanced Lift Technology Mechanical* (Level 5 - 20 credits)
ICT Application (Level 4 - 20 credits)	Introduction to Engineering Design (Level 4 - 20 credits)	Advanced Lift Technology Electrical* (Level 5 - 20 credits)
Contract Management (Level 4- 10 credits)	Contract Management 2 (Level 4 - 10 credits)	Advanced Lift Technology Hydraulic* (Level 5 - 20 credits)
		Lift Engineering Project (Level 4 - 20 credits)

*= only 2 of these 3 modules required

MSc Lift Engineering

- The MSc Lift Engineering is accredited by the Institution of Mechanical Engineers (IMechE).
- The course aims to provide a detailed, academic study of lift engineering and related management issues, together with a higher level qualification for persons employed in lift engineering as well as in allied industries.
- Is offered by distance learning giving an opportunity for current practitioners in the industry to get involved in a detailed academic study of mechanical and electrical engineering and management in the context of Lift Engineering issues
- composed of compulsory and elective (designated) taught modules, together with an independent research Case Study and the MSc dissertation

MSc in Lift Engineering

Compulsory Modules

- LIFM001DL Lift Applications Engineering
- LIFM002DL Codes and Standards
- LIFM003DL Management of Construction Industry Contracts
- LIFM004DL Case Study
- LIFM012DL Dissertation

Designated (elective) Modules

- LIFM005DL Lift Component Applications
- LIFM006DL Hydraulic Systems
- LIFM007DL Control Systems
- LIFM008DL Microprocessor Applications
- LIFM009DL Utilisation of Materials
- LIFM010DL Dynamics and Vibrations
- LIFM011DL Vertical Transportation Systems

Research Degree programme

- Opportunities to study towards PhD/MPhil
- Research in the area lift system engineering, project management, lift dynamics and vibration / ride quality; traffic analysis; testing and computer simulation;
- Established research collaboration links with leading academic institutions and the Lift Industry within the UK and overseas;
- Knowledge Transfer Partnership (KTP) project opportunities leading to research degree.

Key technical areas

- **Vertical transportation design**

How many lifts? What car capacity?

How fast? Location in the building?

- **Control systems**

How to move the car from floor to floor

How to register and respond to car and landing calls

- **Power and energy performance**

What is the energy consumption?

Is the system energy efficient?

- **Safety systems**

Are the requirements imposed by safety codes satisfied?

- **Vibrations and high-rise installations**

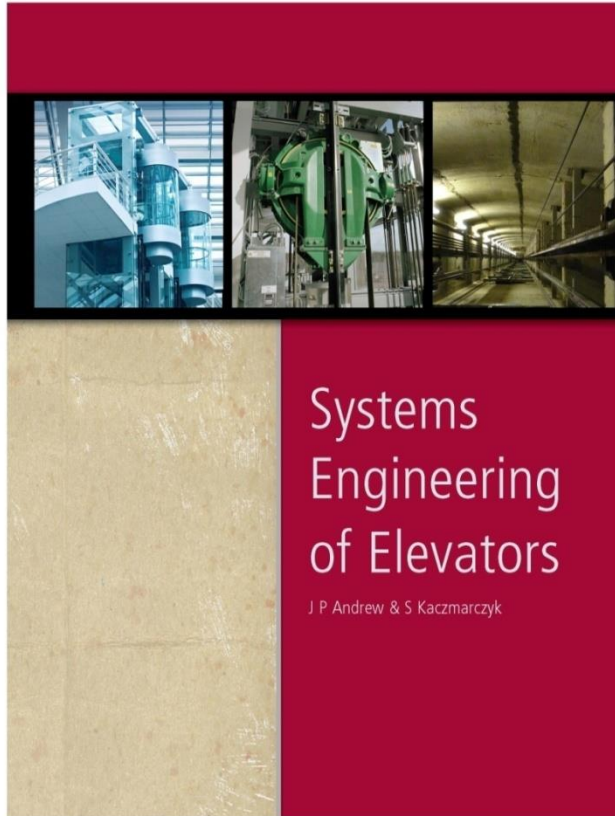
How can good quality of car ride be achieved?

How can resonance conditions be avoided / mitigated?

How can the effects of building sway

due to earthquake / high wind conditions be predicted and controlled?

Learning Materials



- Programme is learnt not taught, learning materials are an agenda for learning;
- Include reference works, which are existing texts or, where necessary, specially prepared reference texts;
- A set of Learning Packages (LP), giving a programme of guided study through the reference works in accordance with the learning outcomes of the module;
- A set of appropriate assignments for completion and return to the Module Tutor for formative and summative assessment.

Education in the Elevator Industry

- *CET / CAT Programs*
 - *NEIEP*
- *Elevator World, Inc.*

CET / CAT Programs



Certified
Elevator
Technician



Certified
Accessibility
Technician

- Developed by the National Association of Elevator Contractors (NAEC).
- CET: A four-year education program for elevator and escalator installers and maintainers.
- CAT: A two-year education program for accessibility contractors.

Visit naec.org for more information

NEIEP Program



National
Elevator
Industry
Educational
Program

- Developed for union employees (IUEC)
- Provides hand-on training utilizing labs, text materials and videos.
- NEIEP designs, develops, updates, administers and monitors the Mechanic Examinations in accordance with the U.S. Department of Labor.

Visit neiep.org for more information

Elevator World, Inc. Courses



elevatorbooks.com
ELEVATOR WORLD'S ONLINE BOOKSTORE

- Offering online-based continuing education courses that cover safety, maintenance, installation and more.
- Online-based courses provide immediate access after purchase and 24/7 availability Most courses approved by NAEC and NAESA.

Visit elevatorbooks.com for more information

...offers books and educational materials that cover:

- Engineering
- Maintenance
- Installation
- Electrical
- Codes & Standards
- Design
- Safety
- ... and more!



Visit elevatorbooks.com for more information



Autumn 2017

19 September 2017

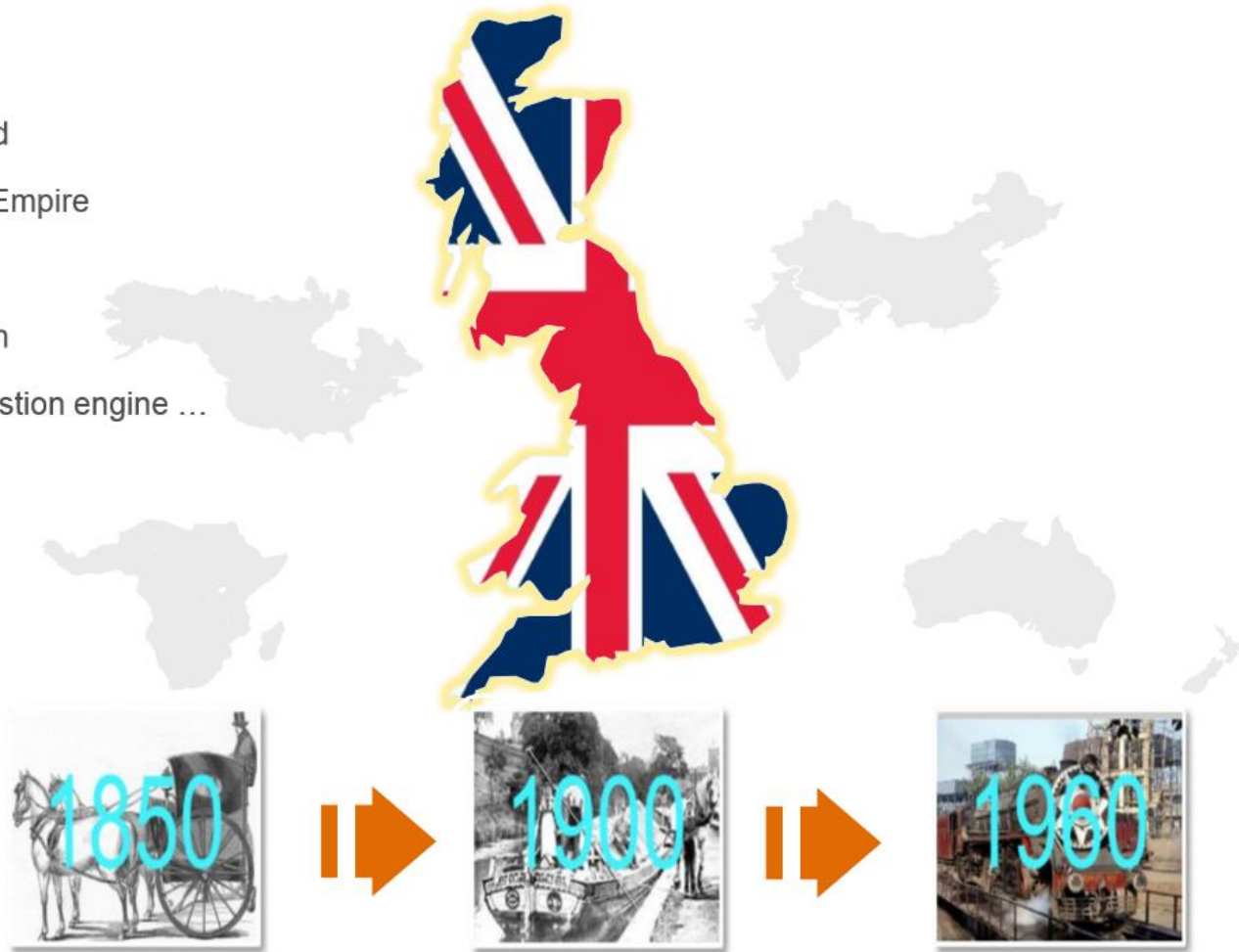


Today's theme - European growth investing

1st industrial revolution

Characteristics:

- ▶ State controlled
- ▶ Led by British Empire
- ▶ Steam power
- ▶ Industrialisation
- ▶ Internal combustion engine ...



2nd industrial revolution

Characteristics:

- ▶ Uncontrolled
- ▶ Market led / the invisible hand
- ▶ Global and decentralised
- ▶ Disruptive technology



Rapid uncontrolled change....

Predator models



Global competition



Decay of old models



Reflected in political change

1980s

2017





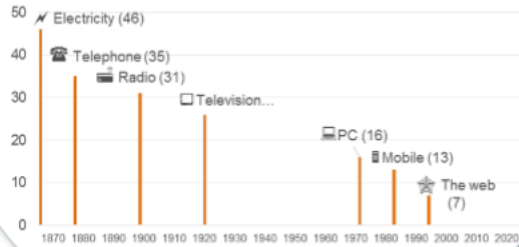
Investing in Growth Equity

Focus on Europe

Tech innovation – enabling growth investment

Technology adoption

(Yrs until used by ¼ of US population)



Source: Singularity.com

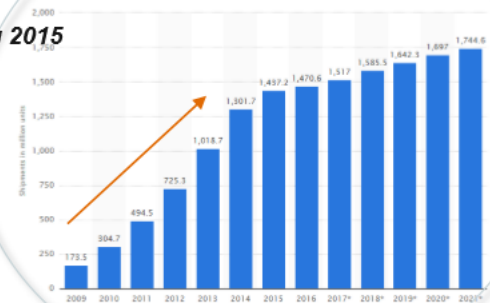
“2bn broadband connections in emerging markets x2 that of developed markets” Ernst & Young 2015

Tech innovation & diffusion

- ▶ Internet / smartphone penetration
- ▶ Cloud computing / internet of things
- ▶ Increasing processor speed
- ▶ Scalability of new business models
- ▶ Funding shift from public to private markets (companies stay private for longer / at bigger size)

Smart devices

Global smartphone shipments from 2010 to 2021



Source: Statista 2017

Cloud computing

“90% of data has been created in the last 2 years” IBM, Dec 2016

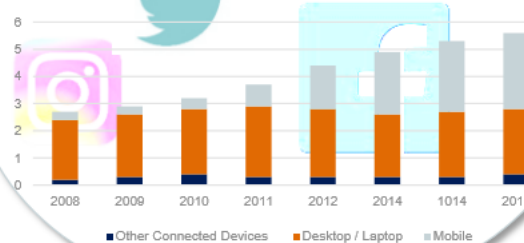
Objects stored in Amazon S3 (billions)



Source: Amazon Investor Filings, 2014 (KKR)

Consumer behaviour

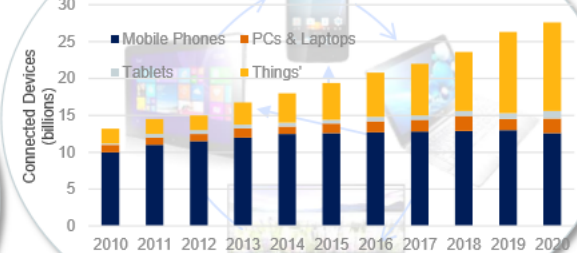
US digital media interaction per day US January 2008 – April 2015



Source: eMarketer, April 2015 (KKR PPM)

Internet of things

Connected devices forecast










Source: MIT Technology Review Business Report, 'The Internet of Things', Page 2, 2014 (Zouk PPM)

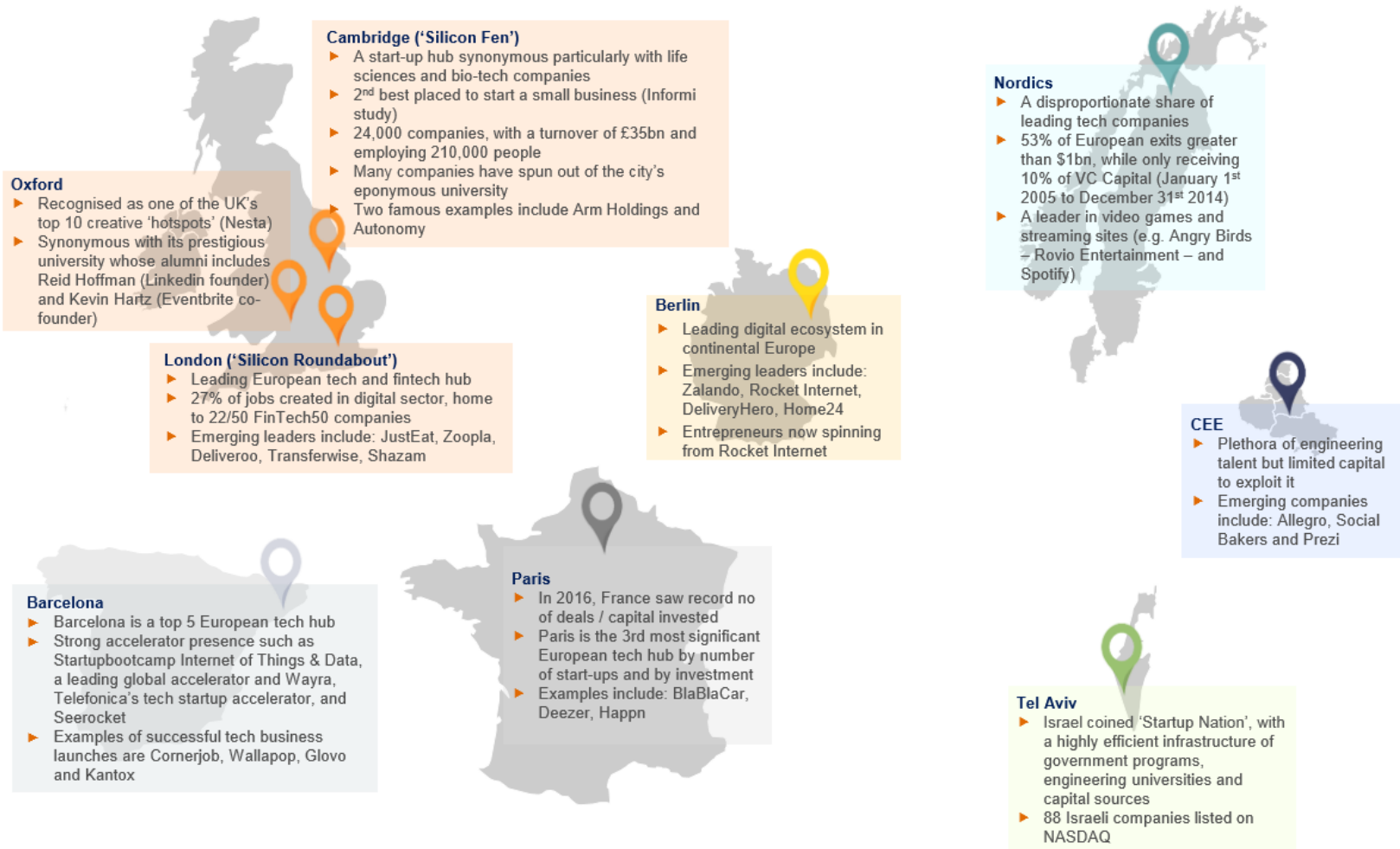
Growth investing market opportunity – key sectors / themes

Accelerating technological innovation

- ▶ New technologies are reshaping the way we live and work, affecting a multitude of industries and business models, but most prevalent in TMT, financials and consumer sectors

Investment themes	Sector exposure	Geography	Why we believe this matters
Digitalisation & IT infrastructure 	<ul style="list-style-type: none"> ▶ All sectors 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Digitalisation of business, growth of the internet, mobiles and computing etc. has led to the creation of large amounts of data ▶ Analysis and utilisation will improve business efficiency and profitability
Internet of things 	<ul style="list-style-type: none"> ▶ Technology ▶ Industrials ▶ Consumer discretionary ▶ Healthcare 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Connected devices are already a reality ▶ Prevalence will increase as the cost of adoption declines and uniform platforms emerge
Cybersecurity 	<ul style="list-style-type: none"> ▶ Technology 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Increasing prevalence of cyberattacks means increased security measures to protect computers and data will be critical
Fintech 	<ul style="list-style-type: none"> ▶ Technology ▶ Financials 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Electronic payment systems have been a huge area of growth, helping increase competition and cut costs
E-commerce 	<ul style="list-style-type: none"> ▶ Technology ▶ Consumer discretionary 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Huge ease and economic advantage of e-commerce model with low cost distribution centres vs retail presence
Robotics & artificial intelligence 	<ul style="list-style-type: none"> ▶ Technology ▶ Industrials 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Rate of adoption has increased significantly as automation of physical and digital tasks advances rapidly ▶ Artificial Intelligence will shape all aspects of life, helping to eliminate humans from many jobs
Augmented & virtual reality 	<ul style="list-style-type: none"> ▶ Technology ▶ Consumer discretionary 	<ul style="list-style-type: none"> ▶ Mainly DM ▶ EM catching up quickly 	<ul style="list-style-type: none"> ▶ Augmented and virtual reality technologies are becoming commercialised and an integral part of everyday life

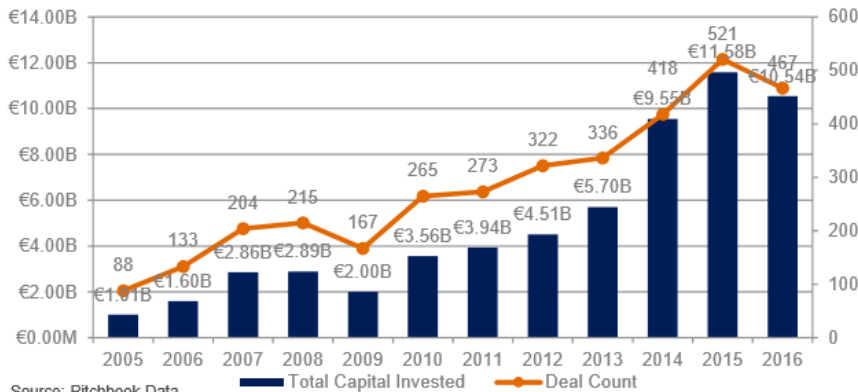
Multiple hubs of innovation in Europe



...where different capital supply dynamics create opportunities

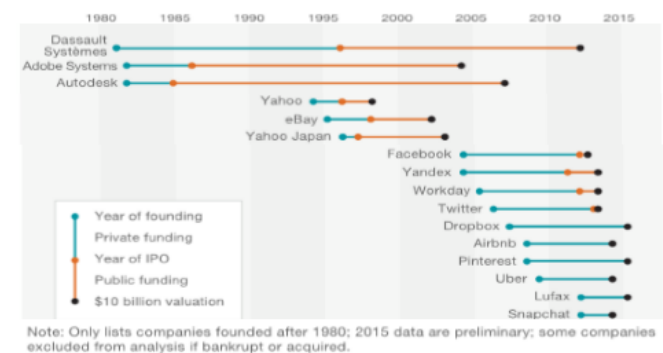
1. Market opportunity in tech-enabled businesses

Deal activity in relevant growth sectors is increasing (\$10-100m deals Series D+ across tech verticals including SaaS, AI, Machine Learning, Cybersecurity, E-Commerce, IoT, Robotics, VR)



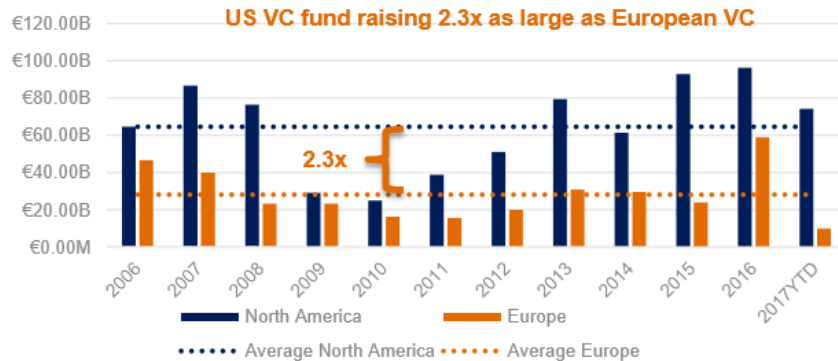
2. Companies are staying private for longer

Software companies are increasingly reaching \$10 billion in value without going public.



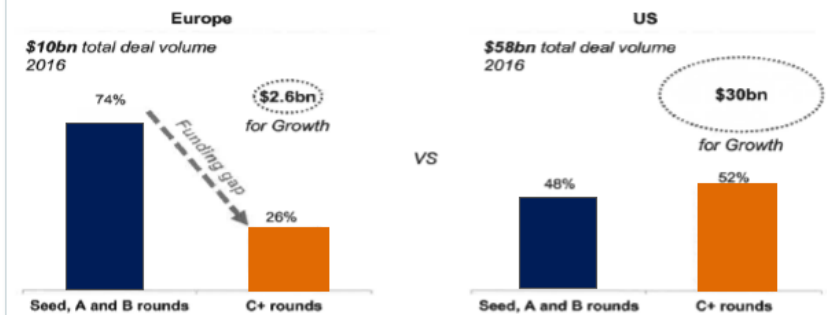
Source: 'Grow fast or die slow: Why unicorns are staying private', McKinsey & Company

3. Fund raising for venture and growth lags in Europe



4. And creates EU/US funding disparity for growth companies

Within Europe, the gap for Series C+ funding is particularly acute ...



Don't look back, look forward

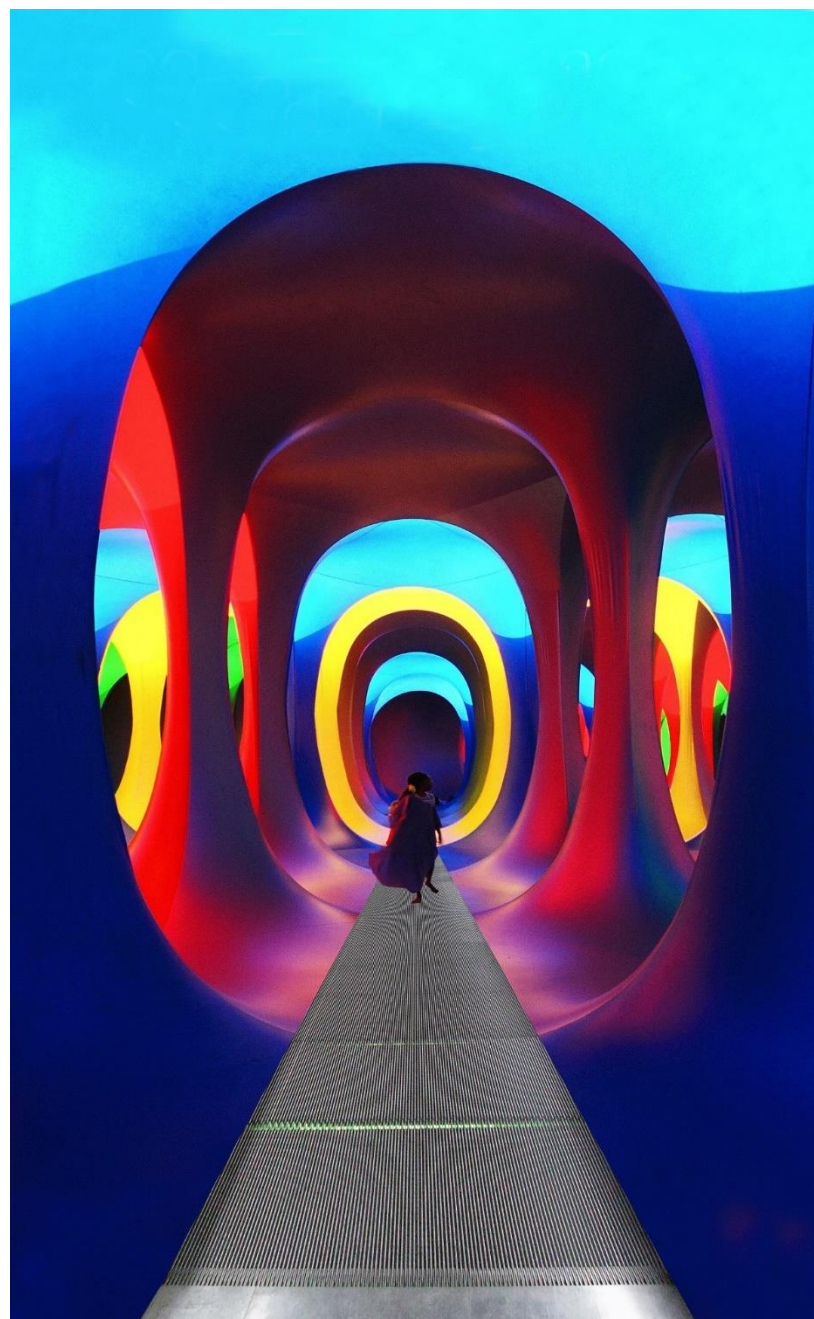


All the people here, no matter what their education, had one overriding objective...

“To move people safely and efficiently through architectural space”



Thank you for your attention



education, training, life long learning – Moving People now and in the future

Wishing you all a Happy Christmas and Educational New Year

