

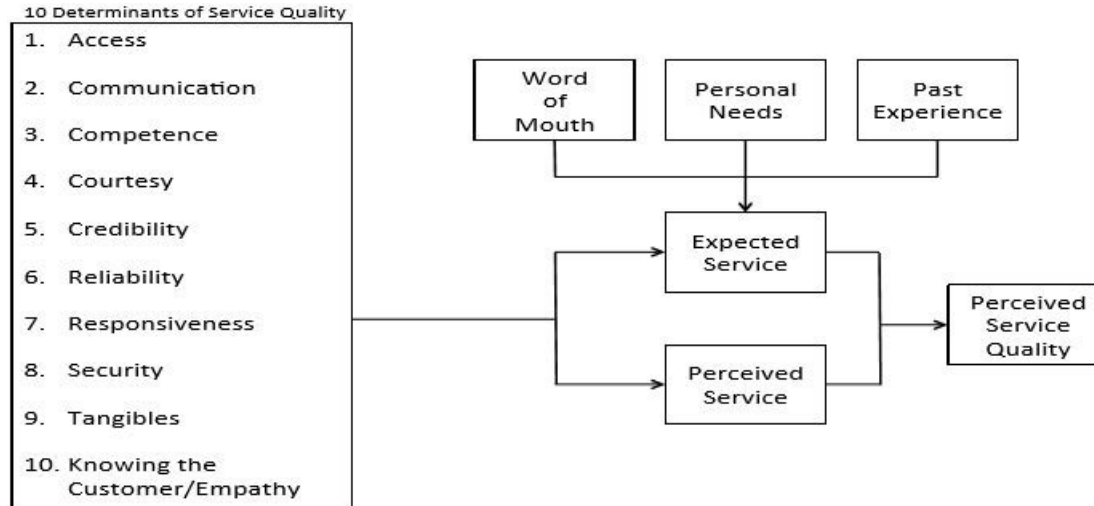
KWENDA WHITEPAPER

Airports 4.0: Impact of Digital Transformation on Airport Economics



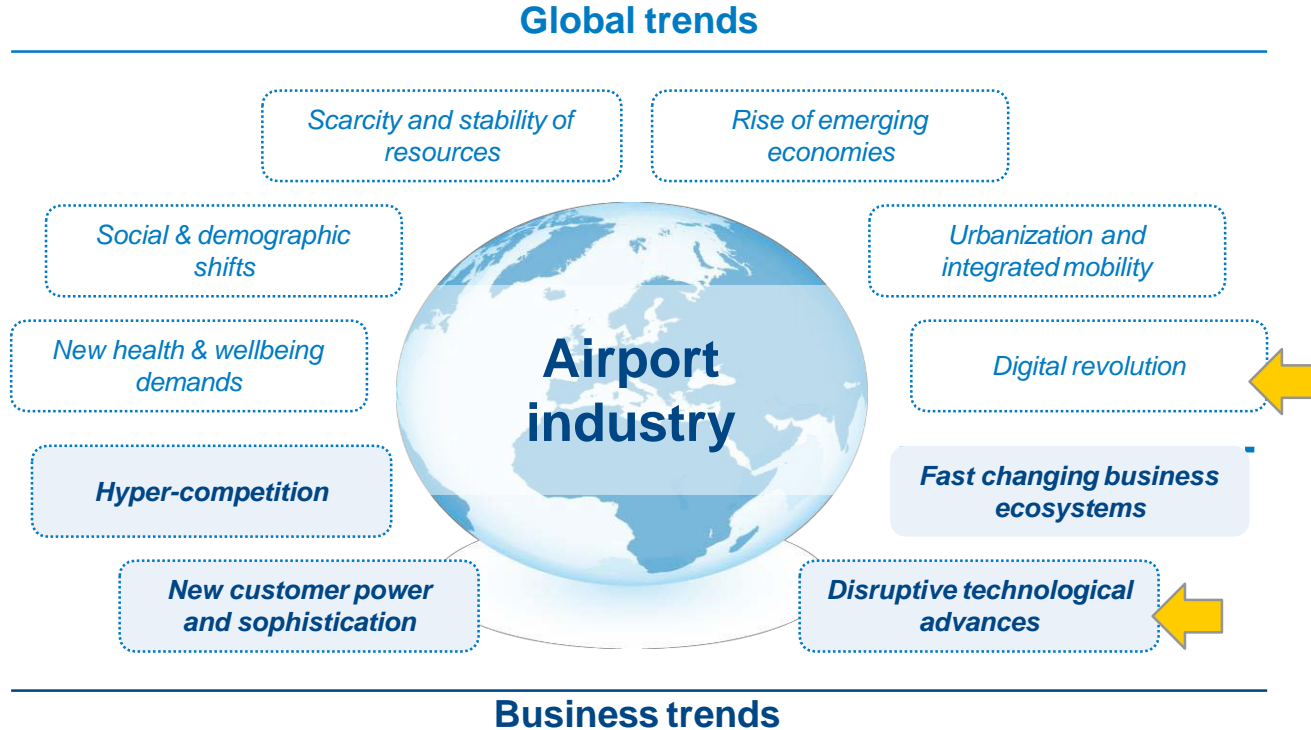
Agenda

- 1 What is Airport 4.0 ?
- 2 A holistic view at digital airport economics
- 3 Key success factors of a digital transformation



1. What is an Airport 4.0 ?

Airports are at the fore-front of global challenges and innovations of our society and business, among which Digital Transformation

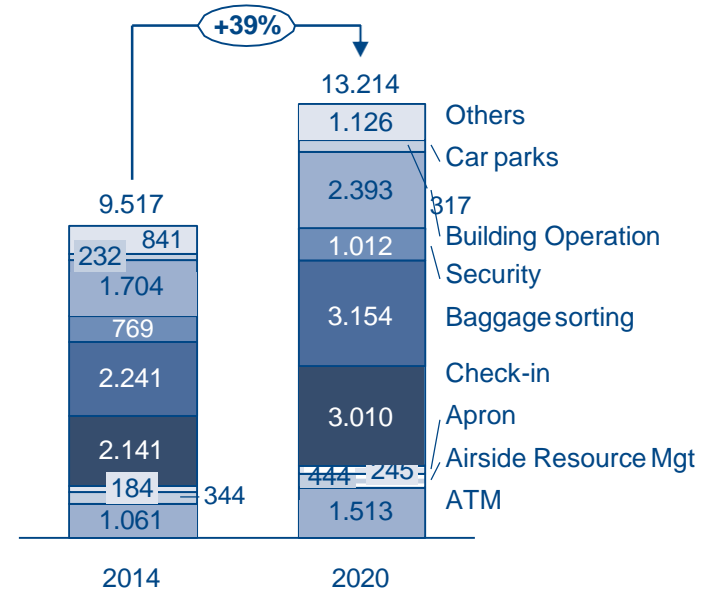


1. What is an Airport 4.0 ?

The airport expenses into “smartization”, i.e. into digital based solutions, should grow by 40% in 2020 vs today with better customer experience and improved operations

- As a public service infrastructure, an airport is a processor/connector between the flow of aircrafts and the flow of [passengers + baggage]...
- Hence the strong focus on airport operations for “smart airport” spending (see infographic)
- As an economic entity, it leverages this position in the value chain to monetize those flows through many different approaches, at each step of the journey
- Smart airport investment should then demonstrate an attractive business case, with high impact on growing revenues and lowering the costs and capital expenditures

Smart airport spending – in Bn\$ 2015



1. What is an Airport 4.0 ?

Airports are currently mature to implement 2.0 digital solutions but should look forward for the next 10-15 years in order to implement an Airports 4.0 model

Airport models

Airport 1.0

- All about manual and analogic processes
- Long lag-time between resource solicitation and the airport answer

Airport 2.0

- Implementation of self-service thanks to the automation of some key flow processing tasks (bag-drop, passport check)

Airport 3.0

- Several focused initiatives to leverage digitalization so that to optimize flow monitoring and processing

Airport 4.0

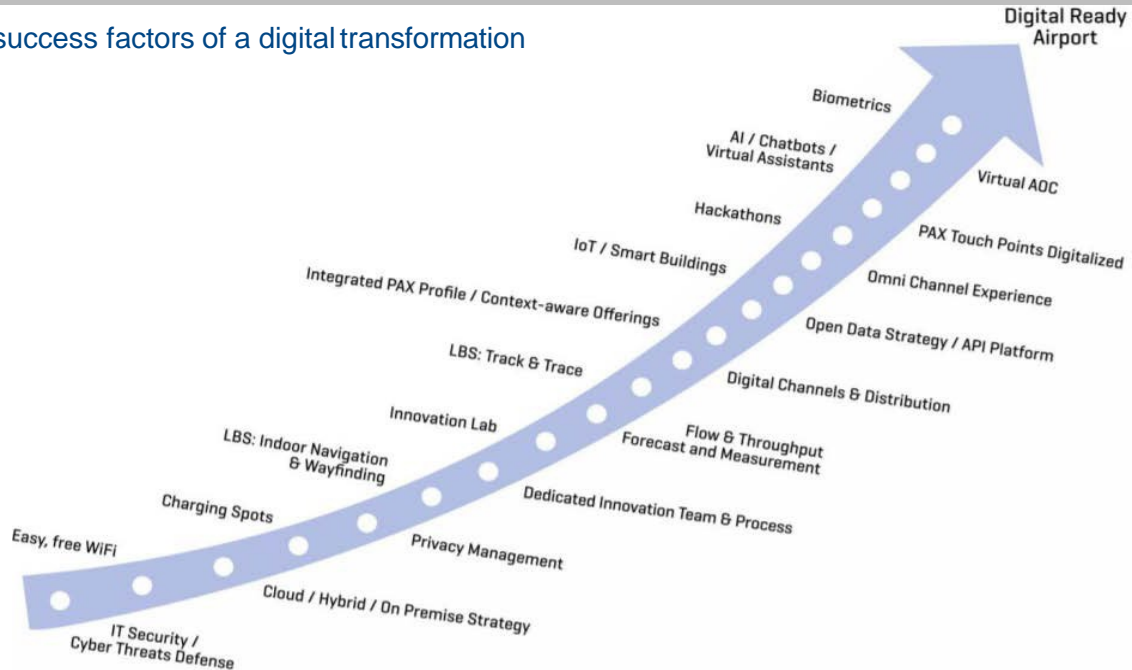
- Full-connected with all stake-holders
- Superior proactivity and reactivity to adapt to the real-time solicitation of the airport (operational needs, customer requests)

Agenda

1 What is Airport 4.0 ?

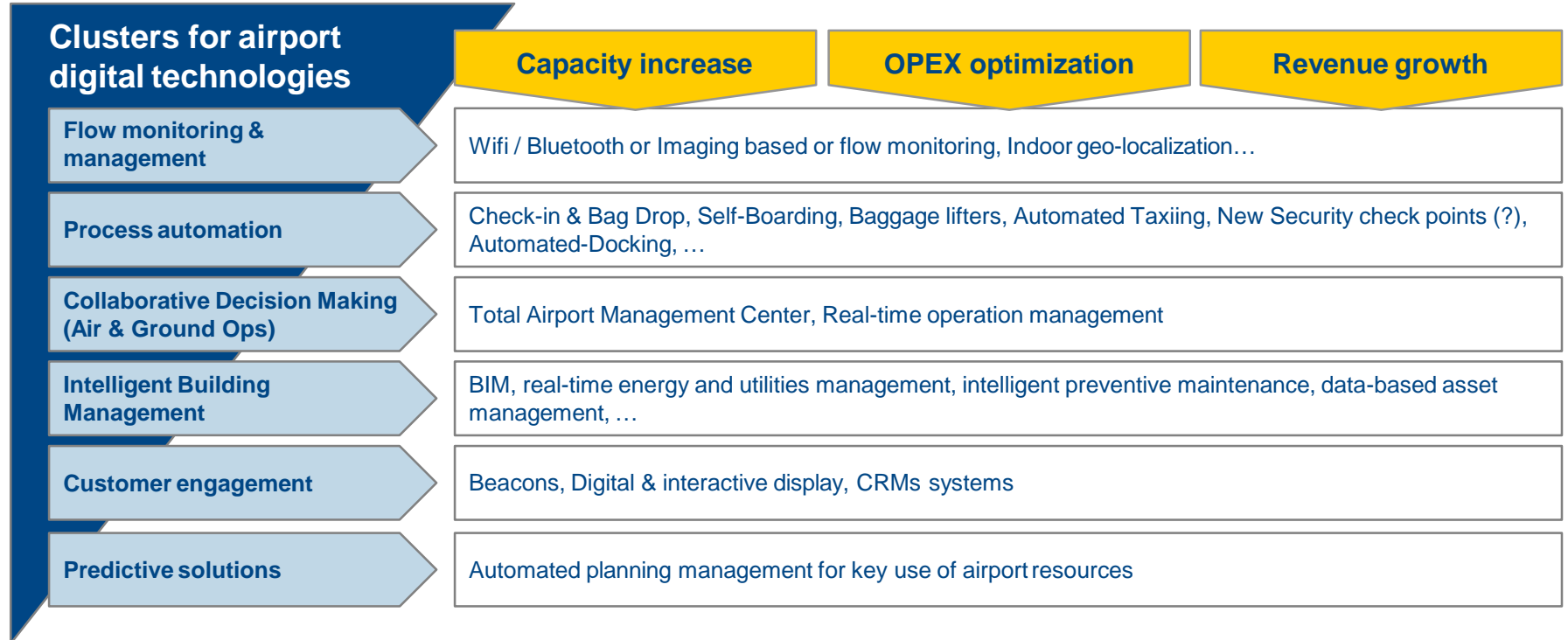
2 Economics of Full Digital 4.0 Airports

3 Key success factors of a digital transformation

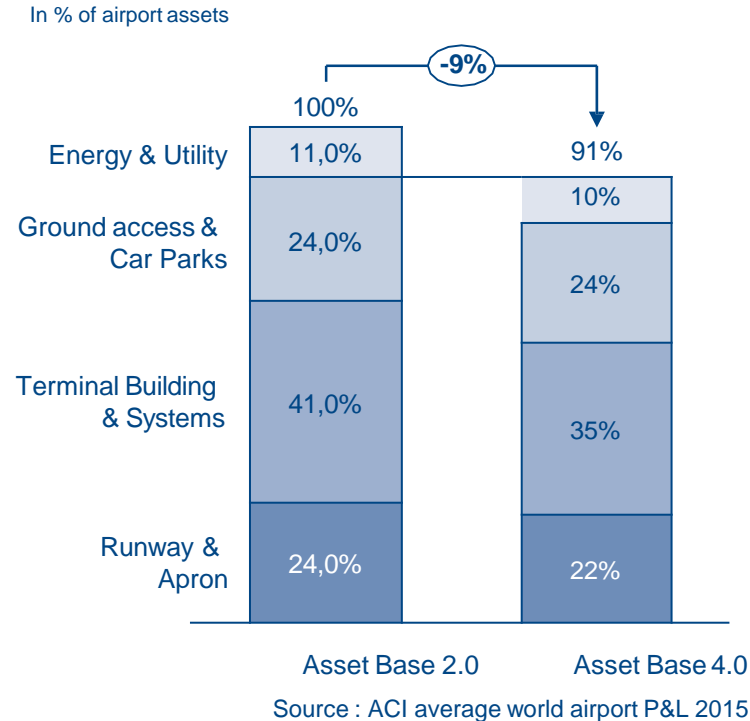


2. Economics of Full Digital 4.0 Airports

A Full Digital Airport leverages 6 technology clusters to optimize its economics by increasing capacity of existing facilities, lowering OPEX and boosting revenues



Digital transformation as clearly a great impact on capacity utilization and therefore on required CAPEX for extension

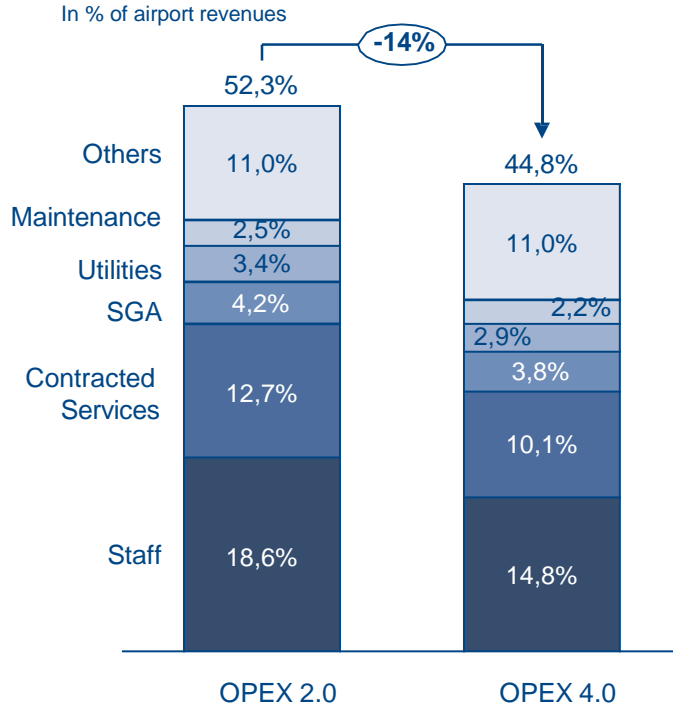


Examples of capacity increase

- Non-CAPEX focused solutions, i.e. process optimization through data-analytics :
 - Runway capacity increase by +10% (LGW)
 - Check-in capacity >20% (CPH)
- CAPEX-based solutions :
 - Automated bag-drop +30% (ORY)
 - IATA future security check-point concept
 - ...

▶ **Airside : 10% to 15% capacity increase**
Landside : up to 30% capacity gain, but unit cost +15% for intelligent building & equipment

Process automation and Energy & Building management could have a great impact on OPEX



Source : ACI average world airport P&L 2016,


Examples of OPEX optimization

- Automation of passenger treatment processes saving 20% to 50% of staff
- Sharing of real-time situation awareness for ground operating staff of airports, handlers, airlines and other 3rd parties : -10% supervision costs
- Reduced labor-cost and external purchasing for maintenance (linked to CAPEX optimization and intelligent assets)
- Automated administrative processes (revenue accounting and billing, basic training etc...)
- Reduced energy consumption (lighting, heating...)

▶ **Organizational challenges are also key to be considered to leverage those gains potential**

From an helicopter-view the impact of the Digital Transformation of airports on revenues seems quite significant

Revenue Growth Accelerator

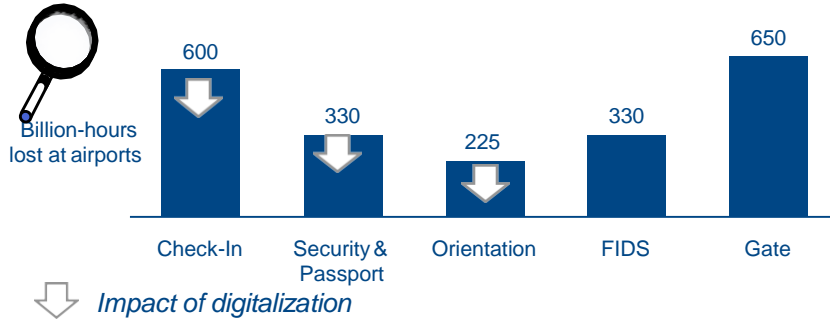
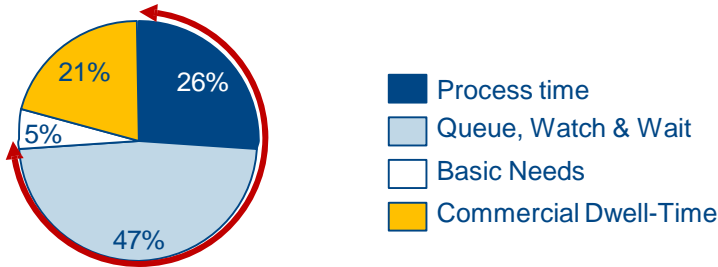
- Increased dwell-time thanks to better operation efficiency driven by digitalization
- Enhanced interaction with customers:
 - Better flow knowledge and tracking of individuals at the airport terminal
 - Ability to push sales and to propose hyper-segmented offers, instantly 
- Dynamic pricing (today in car parks, tomorrow in retail with discount coupons / bundled offers etc...)

Potential threats on airport revenue streams

- Moving some transactions away from the airport :
 - Duty-free online...
 - ... with pick-up on-board of goods purchased
- Disintermediation of services providers operating at airports :
 - Car sharing solutions using long-term parked vehicles
 - ...

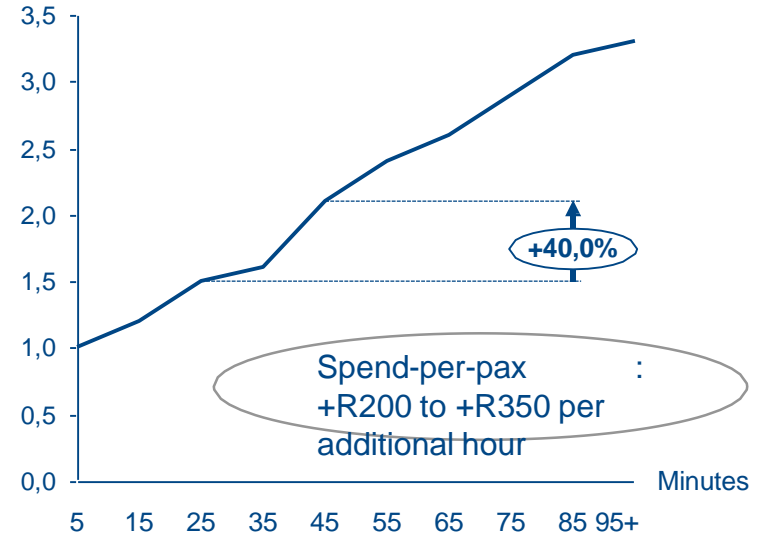
Obviously, more efficient and faster processes are the key for customer spending increase at airports

Split of passenger dwell time at airports



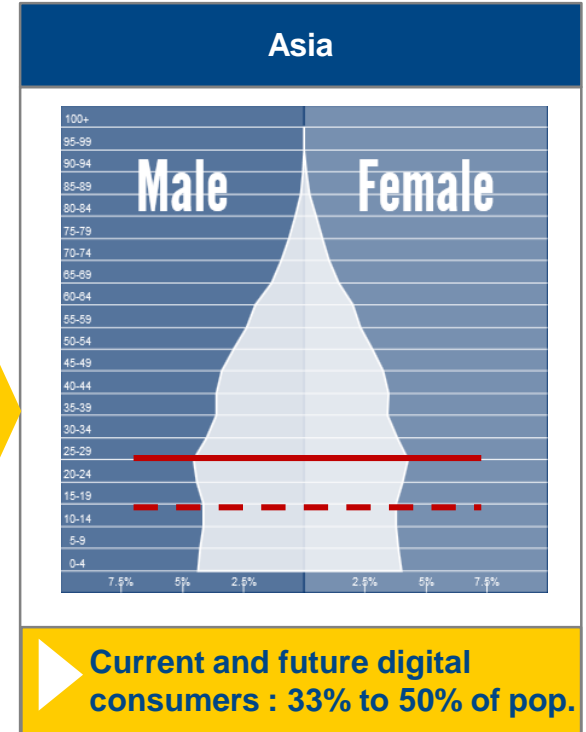
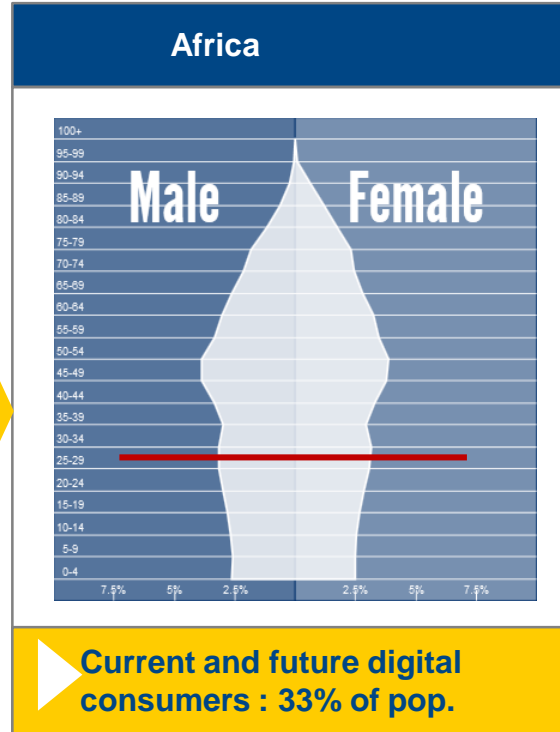
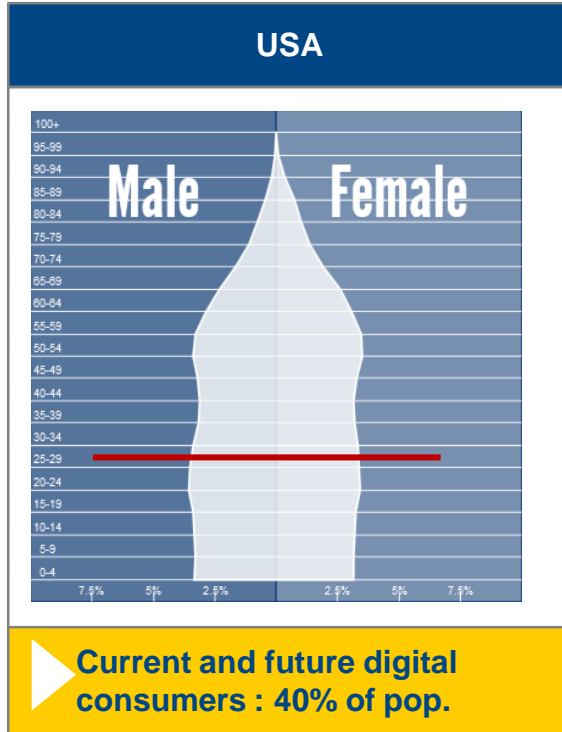
Correlation between dwell time and spend-per-pax at airports

Spending ratio



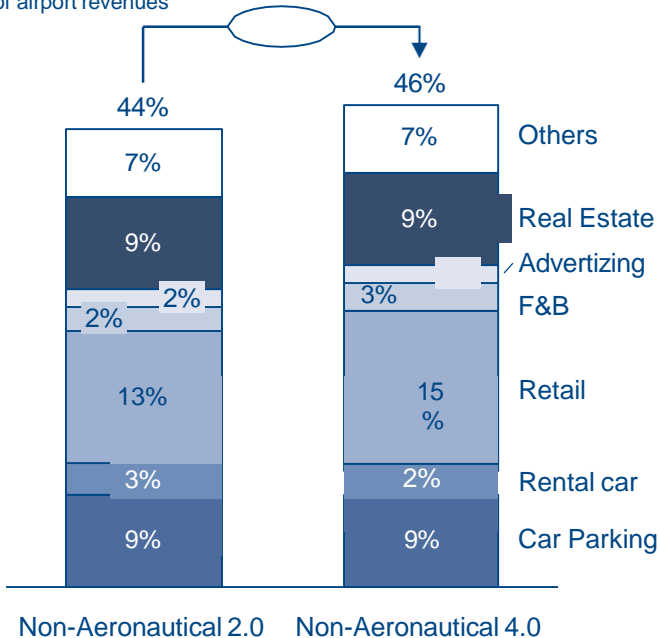
2. Economics of Full Digital 4.0 Airports

Digital Transformation is also key to address the current and future Digital consumers, that are representing 40% of the world population today



Actually, revenue increase lead by Digitalization is still uncertain today : revenue upside can be threaten by “digital competitors” ; nevertheless digital interaction is a must-have

In % of airport revenues



Examples of revenues upsides and downsides because of digitalization

Retail + F&B :

- +7% to +15% thanks to increased dwell-time
- +15% (?) potential from enhanced customer interaction
- competition from online dutyfree ?

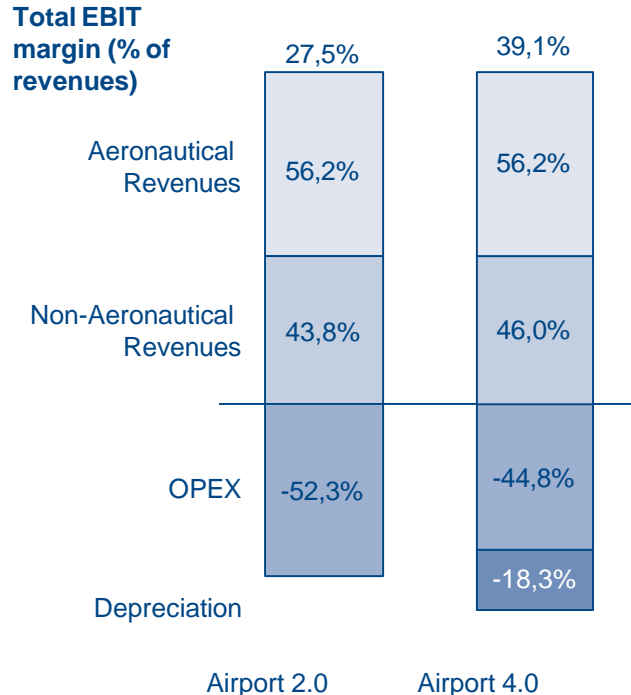
Advertising :

- Spectacular sales increase for products being advertised digitally today (but will it last ?), ... hence higher revenues for advertising operators...
- ... but that are not converted into higher advertising fee for airports has ad operators claim for higher CAPEX for digital displays

Car park and car rental :

- Yield management enables +8% to +12% sales increase...
- but price comparators or car sharing solutions might take-way 10% to 20% of revenues

Overall, unleashing the potential value of Airport 4.0 economics looks quite attractive vs the current Airport 2.0 business model with a significant EBIT improvement potential



Source : ACI average world airport P&L 2016

A “full-digital greenfield” airport would generate more than +10pts EBIT margin

- Capacity increase by 16-25% minimum, but CAPEX reduction only by -10% (cost of intelligent building & equipment)
- OPEX reduction by 18%
- Revenue growth mainly induced by the “side-effect” of better customer satisfaction and increased dwell-time

Challenges for airport operators are the following :

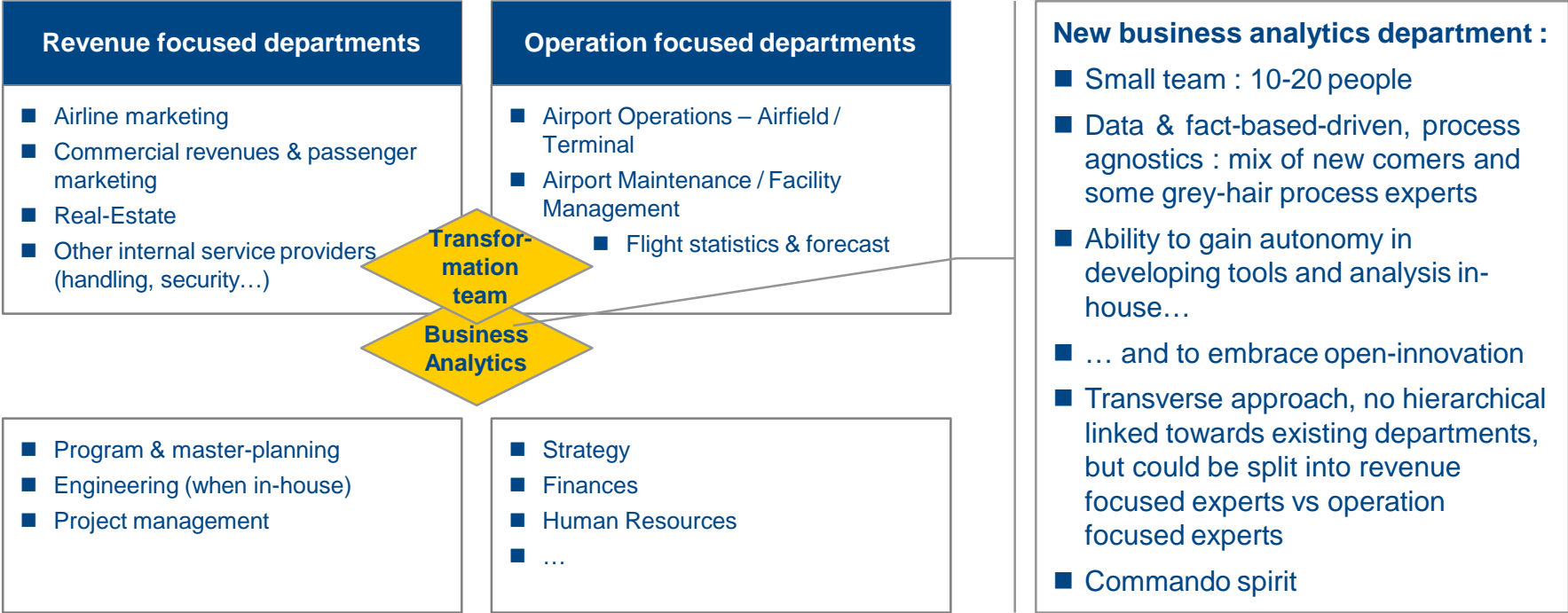
- At what pace can we achieve our full digital transformation ? What are the key success factors ?
- How to preserve most gains for the airports while sharing part of this additional profit between stakeholders ?

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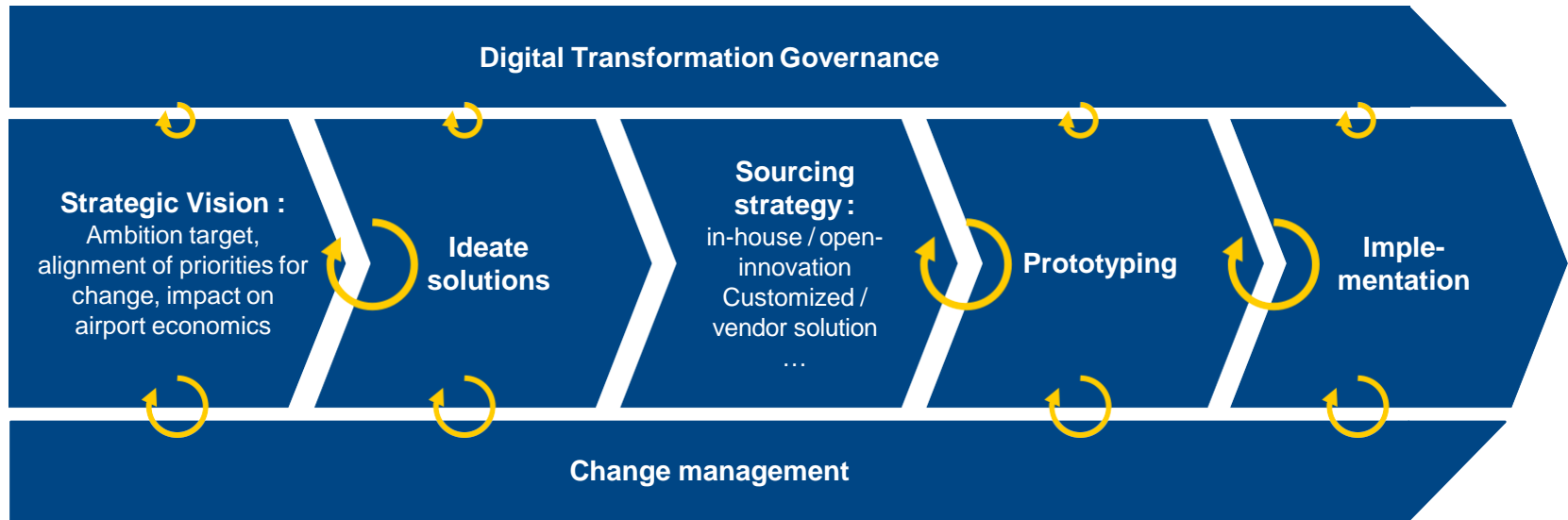
3. Key Success Factors of a digital transformation

A Digital Transformation requires new skills and talents ; it should involve the entire airport organization



3. Key Success Factors of a digital transformation

Achieving a Digital Airport Vision and Business Model requires the combination of (1) a usual strategic planning approach and of (2) Design Thinking bricks



▶ Boosting creativity, shortening “go-to-market” cycles, winning the buy-in of the organization...
... while focusing efforts and managing potential conflicts of interest

3. Key Success Factors of a digital transformation

A successful Digital Transformation must provide tangible and economic benefit to every stakeholders of an Airport 4.0

Airports & Investors :

- Implement lean & agile business model :
 - Skills and activities of tomorrow ?
 - Integrator vs Orchestrator ?
 - “Flexible” CAPEX ?

Airports & Airlines :

- Transform into a « Smart airport » , consider risk-sharing and value-based relationships
- Find a modus vivendi with airlines to manage the battle for consumer ownership through digital media

Next generation airport business model

Airports & Consumers :

- Leverage big data & technology to understand « hyper-consumers » and boost both customer experience and commercial revenues
- Find the right balance between being “a connector” and a “place of enjoyment”

Airports & The City

- Contribute to the aviation industry green effort
- Contribute to & prescribe mobility strategies based on digital-enabled solutions

Contact details

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