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DIGITAL INDUSTRY TRANSFORMATION - COMPLEX ANALYSIS OF TECHNOLOGIES, BENEFITS, SUCCESS FACTORS AND BARRIERS

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Introduction

- **Digital transformation (DX)** - innovative application of digital technologies
- **Three focal laws (the drivers in the background of DX):**

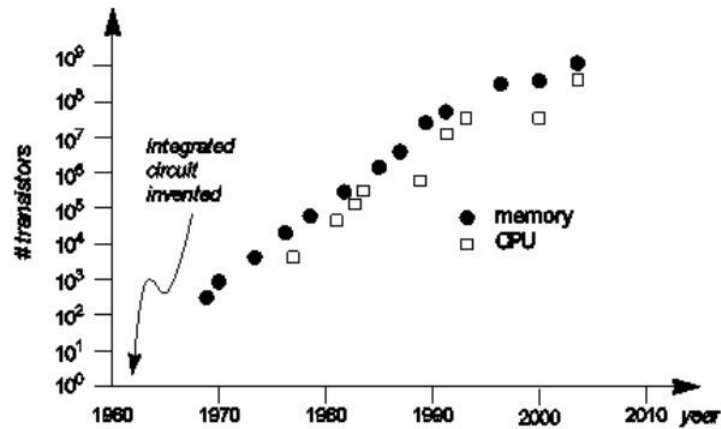


Fig.1 Moore's law

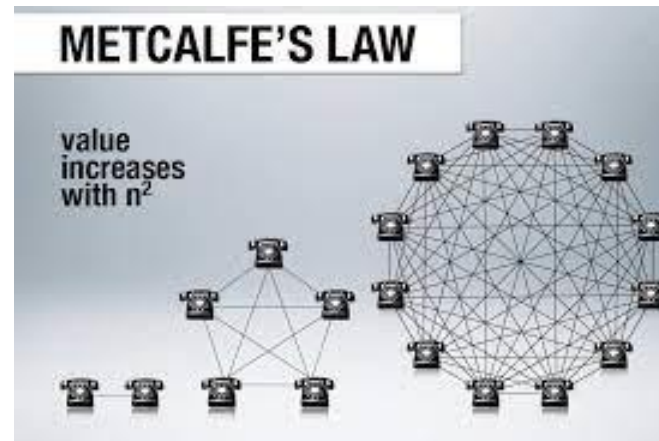


Fig.2 Metcalfe's law

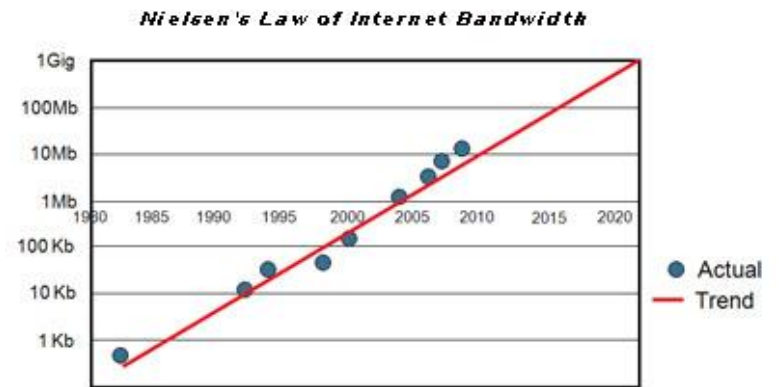
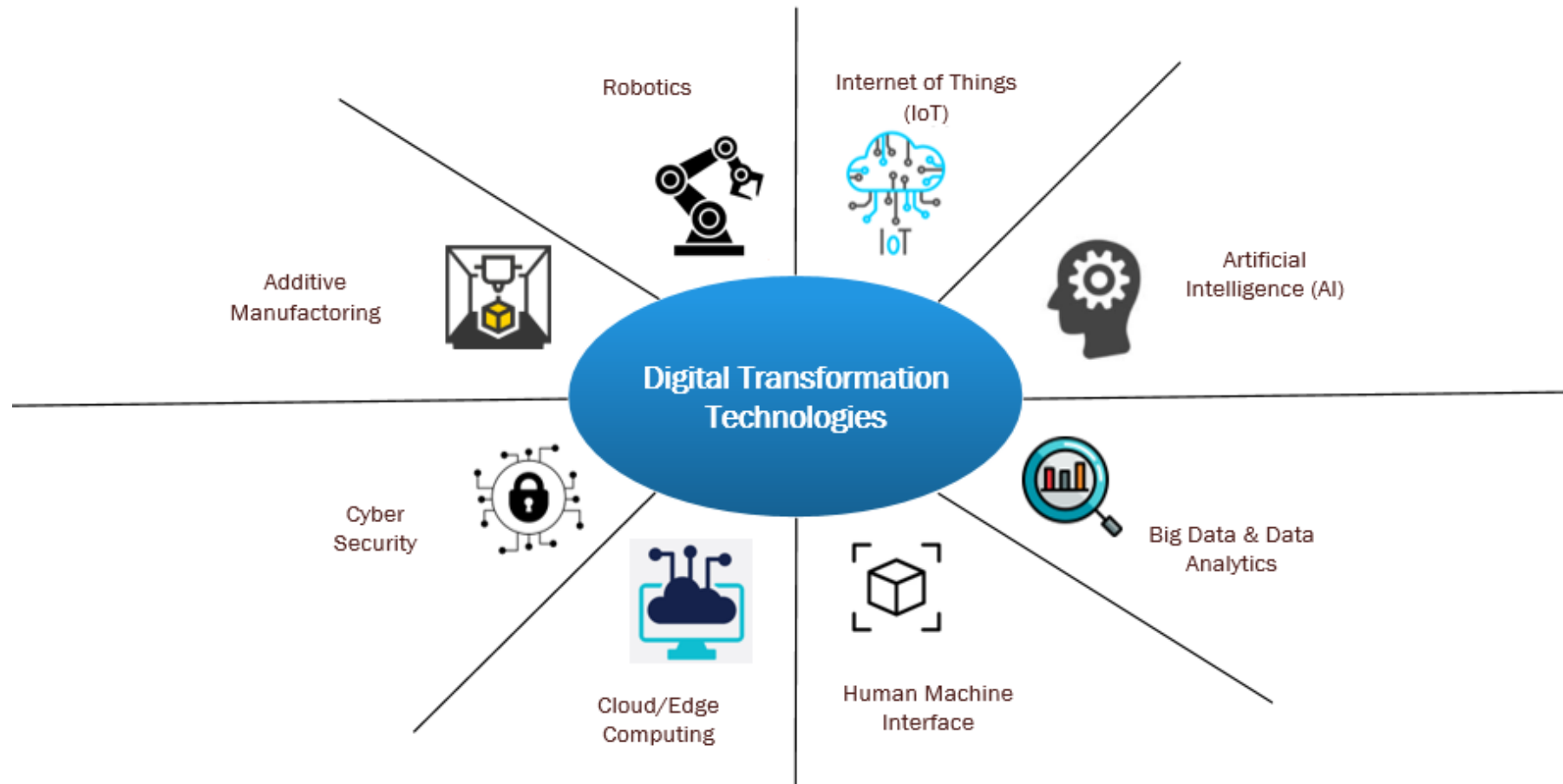


Fig.3 Nielsen's law of Internet Bandwidth

- **Initiatives and motivators for DX** - market pressure, customer behaviors and expectations, network effects
- **One out of five organizations is succeeding in realizing the true value of digital transformation.**
- **70% of all digital transformation initiatives do not reach their goals.**

Digital Technologies Underpinning Digital Transformation



The digital transformation technologies are mostly technologies associated with the **INDUSTRY 4.0**.

Complex Analysis of Digital Transformation Industry Projects – Technologies and Benefits

- **Survey of 22 top executives** across industries in North Macedonia about digital transformation projects
- Total six industries sectors (analyzed): **Information Technology, Financials, Energy, Manufacturing, Engineering and Telecommunications.**
- Regarding the enterprise size,
 - 6 of the organizations are **micro** (less than 50 employees),
 - 8 are **small** (between 50-250 employees)
 - 9 are **large** (more than 250 employees).
- Research methodology: Likert Scale - rating system

Discussing results:

- **The reason for less used technologies is not finding the right strategy to create value from them.**
- Other remarkable *benefits* from DX: advanced corporate culture, being in touch with the latest technologies, building innovative solutions and products, insights through data, better overall strategy, bring new innovations to companies, simplify communication between parties/partners.

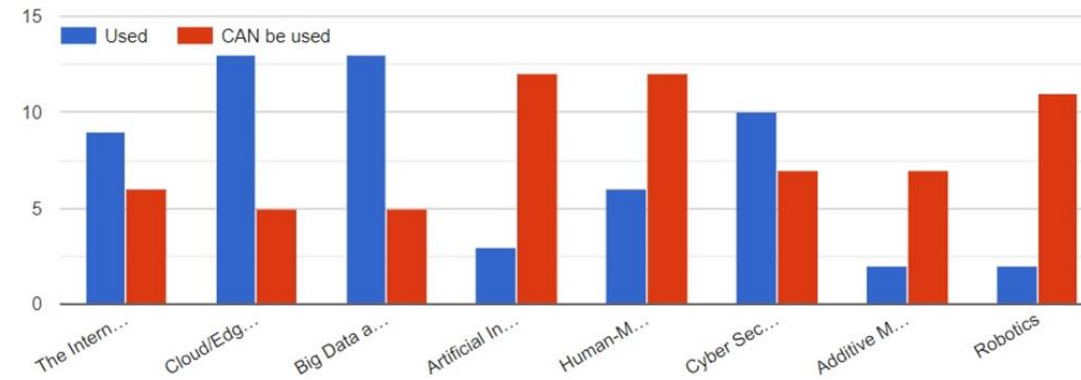


Fig. 4. The use of key technologies underpinning digital transformation - results from the complex analysis

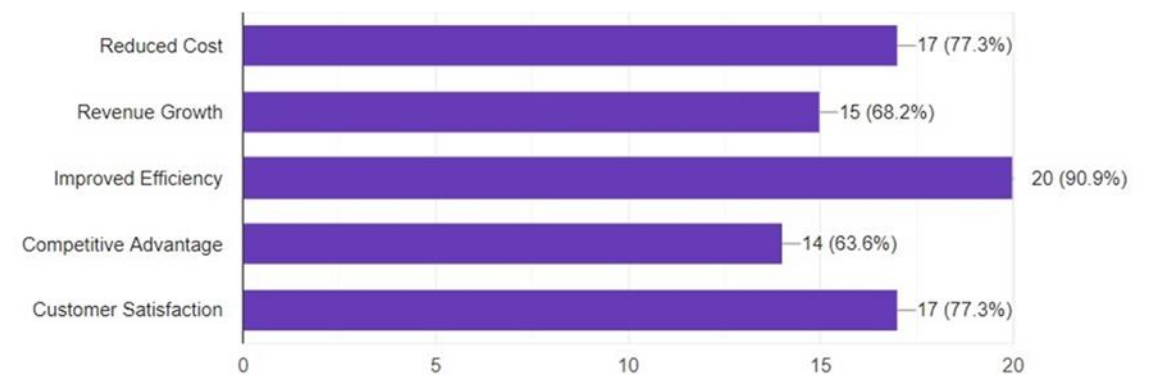


Fig. 5. Benefits from digital transformation - results from the complex analysis

Complex Analysis of Digital Transformation Industry Projects – Key Success Factors and Barriers

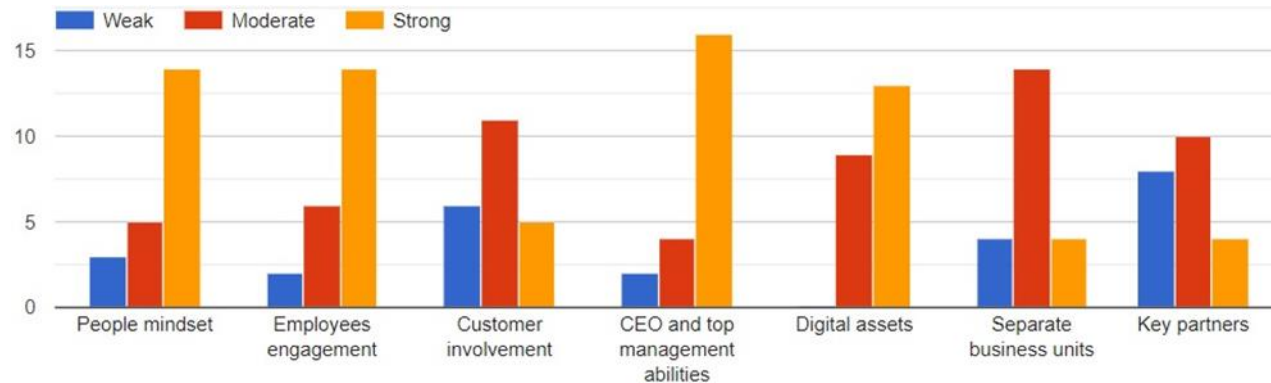


Fig. 6. Digital transformation success factors – results from the complex analysis

- **The main success factors** that can enable the DX in organizations: people mind-set, employee’s engagement, CEO and top management abilities and digital assets.
- While *customer involvement*, *separate business units* and *key partners* are important **but cannot strongly affect the success of the DX**.

- *Resistance to change* - **the number one concern of companies within DX**.
- Participating in change processes can reduce employee resistance to the processes and in turn, enhance goal achievement and organizational commitment

Table 1. Digital transformation barriers – results from the complex analysis

Barriers	Weak	Moderate	Strong
Resistance to change	0	10	12
Financial Resources	2	17	3
Existing IT Infrastructure	2	18	2
Talent Shortage	7	10	5
Risk Tolerance and Transformative Potential	6	12	4
Unknown Solutions	10	11	1
Safety Concerns	12	9	1

Conclusion

- Embracing digital transformation is not straightforward. There is no ‘one way fits for all’. Every organization’s digital transformation process is **unique**.
- **To improve the odds for success** - identify and understand the main success factors and barriers that can affect one’s digital transformation.
- Defining a clear digital vision, establishing a risk-taking, innovative and proactive behavior at all organizational level are one of **the main objectives** that management should focus on.
- They ought to **envision changing their business model and how their organizations can improve in the future** and then organize and develop the technology that will enable that goal, rather than just finding technology first and go back to reach business benefits.