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HUMAN DIGITAL DIMENSION

To Engineer a Just and Humane Society

Introduction

The pervasive growth of digital technology, particularly Artificial Intelligence (AI), and its enormous applications in every sphere of human life is undeniably a force to reckon with. Mustafa Suleyman, in his book The Coming Wave, writes, "Never before have we witnessed technologies with such transformative potential," describing technologies that are both awe-inspiring and daunting. In the modern world, robots and advanced technologies are increasingly capable of performing tasks traditionally carried out by human beings because of their efficiency in work and production. The challenge before us the educators, particularly in engineering education, is therefore to ensure that technological advancement remains firmly rooted in humanization, ethically responsible, enhancing human relationships, and ever at the service of humankind.

1. The Emerging Digital Landscape

As a mathematics and computer science teacher as well as the Director of an engineering college in India, a developing nation, I have witnessed the rapid and incredible transformation that the digital technology has brought into our academic system. Countries like India, China, Indonesia and Taiwan have emerged as important hub of global digital technology. Data centres, semiconductor manufacturing, mobile-phone production, 5G infrastructure, digital banking, cybersecurity and networking have become prime job markets. India, in particular, is emerging as a major digital hub. The growth of semiconductor manufacturing units, advanced computing and digital services reflects the country's increasing role in the global technology landscape. Companies are investing heavily in machines and digital infrastructure more than in human resources. There is no doubt that the digital industry is the present day human civilization and development. However, its rapid growth raises an equally important and most pertinent question: Can we match this extraordinary technological expansion with an equally strong commitment to build a just and humane society?

2. Digital Power in Education

Digital technology has become an indispensable resource in modern-day education. The availability of computers, mobile phones and digital platforms have placed an enormous amount of information and knowledge within the reach of students with a click of a button. The way students learn using these modern devices, has changed significantly. Particularly during and after the COVID-19, online classes and internet-based learning demonstrated both the infinite possibilities and the

abysmal limitations of digital education. A Harvard study (2025) found that students using AI tutors learned more than twice as much, in less time, as students in normal active-learning classrooms.

More recently, research and developments carried out by AI agents, demonstrate the extraordinary power and capabilities of technological advancement. On 8 September, OpenAI claimed that it had solved a version of Navier – Stokes problem, which remained unsolved for decades. About 10,000 AI agents worked together for 88 hours and found an answer. Another AI agent AlphaFold, which predicts protein shapes earned a Nobel Prize in Chemistry. These developments demonstrate the enormous potential of AI to support education, scientific research and human progress.

3. Human-Centred Technology

Digital technology is immense and indispensable in modern life. However, technology must remain resolutely human-centred. It must function as a tool to human development rather than becoming a substitute for human persons, like teachers, mentors, guides and parents. Digital tools should elevate education while preserving empathy, creativity, service and personal freedom across intellectual, emotional and spiritual dimensions. True education depends upon human values such as love, personal accompaniment, trust and mutual respect between educators and learners. While digital tools can enhance teaching and learning, a classroom must remain a space where students and teachers interact meaningfully, engage in activities and grow together. A meaningful teacher–student relationships remain essential for holistic human development. Engineering education cannot be limited only to technological readiness. It extends beyond producing technologically competent graduates. We must have engineers or technology that care for the human persons in total with love, dignity and service to the downtrodden.

4. Youth and the Digital Void

Young people today live simultaneously in two interconnected worlds—the real world and the digital world. The real world includes family, friends, society, nature, everyday human experience and God. Digital technology offers valuable opportunities for communication, education and access to information. However, excessive dependence on digital platforms hugely affects the power of concentration, the beauty of human relationships, and the opportunities of personal development. Darius Foroux in his book, “Do It Today” writes about the real world scenario of the students and their preferences or priorities of life. An experiment conducted by the universities of Wurzburg and Nittingham Trent, revealed 37.4% rated that their smartphone is more important to them than their close friends and 29.4% expressed that smart phone is more important than their parents.

The problem is not simply the amount of time students spend on their phones. A more deeper concern is how their attention is being divided. Constant notifications, short-form videos, social-media engagement and instant responses can make sustained concentration increasingly difficult. The challenge is not to keep students away from technology, but to teach them to use technology wisely while retaining their capacity for attention, reflection, empathy and human connection.

5. Fostering Analytical Mindset

Digital world is filled with enormous information. At the same time, a large quantity of the information are unverified, fake and away from truth. The mere availability of information through

AI and other digital platforms does not automatically result in true wisdom. One of the concerns emerging in the digital age is the lack of critical thinking, analytical orientation and evaluating the nature of information available in digital forms. Education must create opportunities for students to engage in group discussions, debates, classroom interactions, problem-solving activities, critical evaluation of information, and synthesis of information from different perspectives in order to distinguish fake news from true and genuine information. Students must be encouraged to learn to question, evaluate, compare, discuss and form their own informed opinions. The objective must be not merely to teach students how to use AI, but to make them think independently while using AI.

6. Technology, Nature and Human Resources

The digital revolution also has an environmental dimension that cannot be ignored. The expansion of digital infrastructure requires enormous quantities of electrical energy and cooling resources to maintain them. The resources required to build and maintain digital infrastructure have huge environmental impact. There are parts of the world where people continue to lack basic necessities of life, like water, electricity and sanitation. The contrast between rapid technological expansion and the unequal distribution of essential resources invites us to reflect on the purpose and direction of technological development. Technological progress must therefore be accompanied by responsible stewardship of natural resources and a concern for the wider human community.

7. The False Promises of Digital Power

Technology often makes huge promises of efficiency, reliability, security and uninterrupted connectivity. But these promises have limitations. Cybersecurity systems are continually challenged by innumerable cyberattacks. The promise of secure network services, in spite of all kinds of authentication verification mechanisms and digital safeguards, are short lived. Vulnerability is deeply realized and regreted, at every instance of updates of software. In the recent server failure, the aviation network of the US was disrupted. Such incidents remind us that a highly interconnected technological society can also become vulnerable when critical systems fail.

8. Potential Threats to Humanity

For the past few weeks, the digital news is alarmingly sensational. Jacob Coxon, the Anthropic AI engineer, came out with a stunning statement that AI could kill humanity in the next decade. We cannot underestimate the power of this technology. These Artificial Super Intelligence will soon become superhuman systems that are capable of making autonomous decisions which may cause total destruction of human life. ASI could shut down power stations, empty bank accounts and all the other means of livelihood.

One more incident of hacking that happened recently, the Prime Minister of Australia, Anthony Albanese, said that OpenAI agent has hacked into the government medical website. In the US, three government agencies were hacked by OpenAI, namely the websites of Department of Education, Census Bureau of Information and Security and exchange commission. The reckless speed with which the AI agents are moving without any responsible control mechanism or regulatory authority, looks like we are allowing them to dig our graves.

If the digital technology reaches bad actors, who knows we may end up in nuclear, biochemical or drone warfare. How much can we allow ASI to decide and how quick can we regulate it with much needed policies and regulations, which is the most pressing responsibility of the governments, companies, the policy makers and the entire humanity, before it is too late. Here comes a handy Ignatian principle 'Tantum Quantum' – only to the limit to which something is useful, necessary or needed for a life that is filled with love, prosperity and fraternity.

9. Pastoral Care in the Digital Age

The digital world cannot by itself provide meaning, purpose, dreams or fulfilment. As teachers and guides, our responsibility is to help young people move from artificial intelligence towards authentic, altruistic and affective intelligence. Technology should be used as a tool that serves human development rather than becoming a substitute for human beings themselves. Authentic pastoral care requires compassionate presence, personal accompaniment, attentive listening, and meaningful face-to-face relationships. Pastoral work should therefore foster a mature digital spirituality that enables young people to participate in the digital world without abandoning authentic relationships and communion with people, nature and God.

10. How It Is Lived Out in Our Educational Context

As an autonomous engineering institution, we have the freedom and responsibility to respond creatively and quickly to the challenges presented by the digital age. The goal is not to reject technology, but to help young people use it wisely, ethically and responsibly. This commitment is reflected in our curriculum, pedagogy and pastoral accompaniment.

11. In the Curriculum

We have introduced credit-based value-added courses that address the human and ethical dimensions of the digital world, including Universal Human Values for Digital Citizenship, Media Literacy and Truth, and Ethics in AI Design. These initiatives seek to help students understand not only what technology can do, but also how technology should be developed and used. The approach is to teach students to use AI as an assistant rather than an author. AI can support learning, creativity and problem-solving, but students must retain responsibility for their thinking, understanding and academic work.

12. In Pastoral Accompaniment – Cura Personalis

Human formation must extend beyond the classroom. As part of pastoral accompaniment, we organise weekly phone-free evenings in the hostels, where students engage in games, music and sharing. Such spaces create opportunities for students to step away from constant digital stimulation and reconnect with one another. Personal mentoring is also encouraged, with greater emphasis on constructive use of devices and the overall academic, personal and human development of students. This is at the heart of Cura Personalis: caring for the whole person.

We teach our students not only how to calculate, but also what is worth calculating; not only how to programme computers, but also how not to be programmed by computers.

13. In Pedagogy

Our pedagogy seeks to balance the benefits of digital technology with meaningful human interaction, active learning and critical thinking. We recognise that education in the digital age must move beyond the transmission of information and create opportunities for students to question, analyse, evaluate, discuss and construct knowledge independently.

We practise innovative teaching–learning approaches such as problem-based learning, case-based learning, scenario-based activities, think–pair–share, debates, group discussions, puzzles, real-life problem-solving activities, peer learning and reflective exercises. These practices encourage students to look at problems from multiple perspectives, question assumptions, evaluate information and develop evidence-based solutions.

We also use AI and digital tools as learning aids rather than substitutes for thinking. Students are encouraged to critically examine AI-generated information, verify sources, identify limitations and biases, and justify their own conclusions. This helps them understand that access to information does not automatically constitute knowledge or wisdom.

Device-free lectures, mentoring and tutorial hours are also practised wherever appropriate to provide space for focused learning and meaningful interpersonal interaction. Students are encouraged to reflect on their relationship with technology through questions such as:

How did I use my digital devices today?
Did they make me freer or dependent?
Did I use technology for my growth or in ways that drew me away from my values?
Did technology bring me closer to people and God, or further away?

Through these practices, we seek to develop students who are not merely consumers of digital information, but critical thinkers, responsible decision-makers and creative problem-solvers. Our pedagogy seeks not merely to teach students how to use technology, but to kindle their capacity to question, analyse, evaluate and think independently in an increasingly digital world.

Conclusion

The digital revolution and the rapid development of Artificial Super Intelligence are transforming education, industry and human society. These technologies offer enormous opportunities for learning, research, communication and development. At the same time, they present important questions concerning human relationships, attention, dignity, responsibility, environmental sustainability and ethical decision-making.

The answer is not to reject technology.

The answer is to humanise technology.

Through engineering formation, we develop professionals who are technologically competent and ethically responsible; digitally skilled and humanly sensitive; innovative and reflective; capable of using AI while retaining their own capacity to think, question, create and care. Our ultimate responsibility is to ensure that technological progress remains at the service of the human person. We not merely teach our students how to build intelligent machines. We help them become wise, compassionate and responsible human beings who know how technology should serve humanity. In

this way, we contribute not merely to a technologically advanced society, but to a just, humane and compassionate society.